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## Contents.



## Diary Dates.

19 - 21 April 1996. The Spring Conference to be held at the Lion Hotel, Shrewsbury. The price is maintained at £130.

Arrangements have been made with "The Shrewsbury Quest" for a guided tour of the herb garden on the Saturday afternoon, and a talk about Shrewsbury's history on the Friday evening. Other talks will be on commercial drug cultivation, the therapy and prescriptions of John Hall, William Shakespeare's son-in-law, opium smoking, a nineteenth century formulary, and arsenical poisoning.

Wednesday, 8 May 1996. Pharmaceutical Society, Lambeth

"Hortus Eystettensis: The Bishop's garden and Besler's magnificent book" by Nicholas Barker



## Useful Documents.

Once again the Royal Commission on Historical Manuscripts has been kind enough to send us a digest of those major accessions to repositories in 1994 relating to the history of pharmacy.

**Dept. of Manuscripts, British Library.** Letters relating to the history of the discovery of penicillin etc , c 1980-90 (Deposit 9222 and 9444).

**Greater Glasgow Health Board Archive.** Ruchill Hospital prescription books, 1904-06 and 1938-63.

**Liverpool University Archives.** Liverpool Dispensary/ Dispensaries: photocopies of annual reports, 1796-1890 (with gaps) and related papers. (D.627)

**Buckinghamshire Record Office, Aylesbury.** Wing Provident Dispensary: committee minutes and accounts, 1896-1938. (Acc. No.AR 14/94); Holloway family,Thame,Oxf.: papers incl.deeds for the business of a surgeon and apothecary at Thame,1814-85 (Acc.No.AR 18/94)

**Chester City Record Office.** Milling Johnson Ltd., chemists, Chester: recipe books, 19th.- 20th. centuries. (CR 731)

**Devon Record Office, Exeter.** West of England Eye Infirmary: volume recording administration of drugs, 1875-76 (D1299 add.)

**Hampshire Record Office, Winchester.** Savory & Moore, chemists. prescription registers, sales ledgers etc. 1887-1971. (5M94)

**Humberside County Archives Service, Beverley.** Robert Cundall & Co., manufacturing chemists, druggists and seed merchants,Pocklington: suppliers' account books,1878-1993, delivery book, 1889-1900, correspondence received by Robert Cundall as naturalist, 1894. (DDX)

**Guildhall Library.** Western City Dispensary, medical charity minute book, 1829-77.

**Barking and Dagenham Libraries Dept., Dagenham.** Upney (Barking) Hospital: patient registers, reports, drug books etc 1898-1957

**Birmingham City Archives.** Bellamy & Wakefield, chemists, Birmingham records, 1923-45. (MS1831)

**Guildford Muniment Room, Surrey.** G.Morgan Ltd. (and successors), dispensing chemists, Woodbridge Hill, Guildford: records, 1932-74 (Acc.5191); M.M.Brown, chemists, Chiddingfold: accounts, prescription ledgers, poison registers and chemist & druggists' diaries, 1907-75. (Acc.5223); Ripley Pharmacy: chemist's prescription books,1939-78.(Acc.5249)

**Caernarfon Area Record Office.** Lloyd Hughes, local historian: records of Llanfairfechan businesses incl. prescription book of R.B. Roberts, chemist, 1894-1906; customer account book of W.G.Roberts, pharmacist, 1908-1926. (XM 9666); Castle Pharmacy, Caernafon: records, 1880-1936. (XM 9813)

**Clwyd Record Office, Ruthin Branch.** Humphrey Jones, chemist, Llangollen: correspondence and papers, 1850-1942. (DD/DM/1122); Medical Hall, Llangollen: prescription books,1893-1923. (DD/DM/1157)





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# *Umckaloabo* - Late vindication of a secret remedy.

## A. Helmstädter.

During the second half of the nineteenth and the early twentieth centuries, many countries saw a boom in secret remedies whose fame, in most cases, was due more to advertising than to their healing powers. Authorities used to give warnings of these products, usually sold for prices many times their value. In order to estimate the true value of these preparations, independent analyses were undertaken and the results published in journals and books.[1] In Germany, about 2,000 secret remedies were launched during the second half of the nineteenth century but only about a hundred were used to any great extent.[2] Some are still present in today's pharmacies if a scientific *rationale* has been found behind their traditional ingredients but in other cases only the name survives for advertising purposes.

Almost a hundred years ago, a British mechanic, Charles Henry Stevens, introduced a secret remedy in England for tuberculosis. "Steven's Consumption Cure" entered the German market via France and Switzerland in the early 1920s, and is still used under the trade mark "*Umckalabo*" as a cough remedy. In the 1970s ethnobotanical and phytochemical studies revealed the true nature of the ingredient, the root of a South African plant.

### Origin and development of Steven's Cure.

Charles Henry Stevens, born in 1880 at Birmingham, suffered in 1897 from a lung disease which the doctor diagnosed as tubercu-losis[3] The diagnosis was confirmed by a specialist who advised him to travel to South Africa for a cure. In October 1897 Stevens went to Bloemfontein where he met a fellow sufferer who had been cured of consumption by a native. Stevens also consulted this sixty to seventy year old "medicine man" named Kagaitse. He gave Stevens "a substance" taken from the ground which was crushed between two stones, and told him to prepare a decoction from it and to take it twice daily.

In his own words, the medicine was "awful looking stuff" which reacted very strongly in the beginning, causing him to vomit for two hours every morning.[4] Nevertheless, Stevens continued with the treatment and after two months felt very well except for some slight expectoration. In January 1898 he was able to return to England, fit and well.

At that time Stevens did not know the name for these roots, but later he returned to South Africa as a volunteer in the Boer War and served until February 1902. Afterwards he joined the Cape Mounted Police and then in March 1903 started a business, a motor and cycle agency, in Cape Town which was not very successful. About a year later, in May 1904, his office was destroyed by fire - and he was uninsured.

It was then that Stevens began to advertise and sell the root which had cured him under the name of "*Saccom*", and founded a company Sacco Ltd. Kagaitse sent him the necessary roots by mail from time to time as required.

The name *umckaloabo* appeared for the first time in 1905 and was used by the natives who were collecting the roots.[5] Before opening his own business, Stevens had tried unsuccessfully to convince the medical authorities of the value of the plant preparation. At first the *Sacco* business grew rapidly but then Stevens was involved in litigation which "affected his personal reputation".[6] His income rapidly declined and in May 1906 he retired from the company. In July 1907 Sacco Ltd. went into liquidation mainly from lack of support.

Stevens, however, had moved to Johannesburg and founded another drug company called Lungsava. Lungsava preparations, one of which was for use against phthysis and another against silicosis, contained *umckaloabo* combined with another herb, *chijitse*, which was said to stop bleeding almost immediately.[7] The former preparations had been made from the whole *umckaloabo* but those of Lungsava contained only the peeled drug.

Steven's main advertising strategy was to write letters to doctors in South Africa and England, praising *umckloabo* as a "vegetable germicide". Stevens promised his patients that their health would have improved three months after beginning treatment, otherwise their money would be returned. According to his own statement, out of £4,500 income only £60 was returned to unsatisfied patients.[8]

After he had been fined twice for unauthorised medical practice, Stevens decided to return to England where he arrived in the early days of December 1907. He started selling his product a few days after arrival and advertising by means of letters and Sunday newspapers.

In 1909 the British Medical Association published a book called *Secret Remedies- what they cost and what they contain,* to show that these preparations were fraudulant. Steven's consumption cure and his advertising methods were extensively described and were termed quackery, writing that the medicine contained African herbs with odd names of a "Kaffir flavour".9 It was stated that it would be impossible to determine the origin of *umckloabo* and *chijitse* as they were unknown even in African botanical textbooks. Because of its colour and tannin content, it was concluded that the medicine must be made from Krameria (Rhatany) roots.[10]

This publication caused a dramatic decrease in Steven's income from £4,400 to £2,900 a year. Additionally, in letters and postcards he was violently insulted as a quack. Stevens then accused the B.M.A. of defamation.

### Stevens versus the B.M.A.

Two trials are reported, the first which took place from 22 October to 1 November 1912, and the second from 15 to 23 July 1914 in London. Many witnesses and experts were questioned in order to confirm or deny the opinion of *Secret Remedies'* editors. One of the most important questions was



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whether the analysis of the liquid extract of Steven's cure which appeared in his book was true or not.

It was definitely known that Krameria extracts did not act as a germicide against tuberculosis, and many doubts were expressed as to whether any cure was due to Krameria. The true nature of Steven's cure ingredients could however not be defined and furthermore there were numerous positive therapeutic results reported by patients and physicians, though in most cases tuberculosis had not been definitely proven.

After the first hearing the jury felt unable to come to a decision, but after the second it decided that *Secret Remedies* did not defame Stevens, who as a result had to pay £2,000 costs. The judge had pointed out that it was not the task of the court to decide on *umckaloabo's* therapeutic value.

## *Umckaloabo* outside England.

Some years later *umckaloabo* became famous outside England. In January 1920 a Swiss physician in Geneva, Dr Adrien Sechehaye, heard of Steven's cure from a patient but one who died just before it arrived from France. Sechehaye decided nevertheless to give the medicine a trial and obtained promising results which he described in several publications.[12] His first patient was a young woman suffering, according to Sechehaye, from severe tuberculosis. She recovered after taking at least 0.75 G.of *umcklaloabo* powder suspended in a cup of water twice daily for three months.

In the following nine years, Sechehaye treated 800 patients and reported successful cases to the Medical Society of Geneva. His books were translated into German by Wjera and Irene v.Bojanowski who started to sell *umckaloabo* in Freiburg, and wrote their own publications on Steven's cure. Since World War II *Umckaloabo* has been produced and marketed by the JSO company of Regensburg.[13]

## Pharmacological Studies.

Besides all the case reports which were published mainly for advertising purposes, there have been some experiments with animals, and even humans, to prove the efficacy and safety of the remedy. Adrien Sechehaye reported some animal studies in 1921 in which a tincture at 2% dilution had been injected intravenously into rabbits. The animals died after relatively low doses probably because of the tannin content; subcutaneous or intramuscular injections in guinea pigs caused severe pain. However, the extract seemed to be of very low toxicity when taken orally. Infected guinea pigs nevertheless died of tuberculosis despite treatment with *umckaloabo* as soon as animals in an untreated control group.

Later in 1928 when he was 54, Sechehaye carried out experiments on himself. He too felt pain after an intramuscular injection and his temperature was slightly raised, but oral administration for three months (cumulative dose of 113G of *umckloabo* extract) produced no side effects. Therefore, the extract taken orally was considered to be of low toxicity.

No bactericidal effects could be observed *in vitro* and a theory of toxin-binding properties arose.[14]

## Dosage Forms.

At first Steven's cure was a powder of the crude drug suspended in water, but in the early years in England the remedy was sold as a "clear red liquid" containing alcohol, glycerine and a drug decoction.[15] In Switzerland a fluid extract was probably the predominant dosage form, whilst in Germany in the late 1930s, the drug was sold as powder, extract or tincture; the tincture was to be added to a cup of hot water and taken half an hour before a meal twice daily. In cases of gastric irritation, the decoction could be given as an enema. Dosage was steadily increased during a course of treatment.

## The Botanical Solution.

The true botanical nature of *umckaloaba* was debated for many years. Several analyses of the preparations and of the crude powder were undertaken by the authorities. *Secret Remedies* had revealed a tannin-containing drug such as Krameria (Rhatany) combined with a litle Kino, a result which has been queried

The powder was described as light and dry of a chocolate-brown colour with an astringent taste and a slight but typical odour. It contained many starch grains, no alkaloids were found but a glycoside structure was identified.[16] An X-ray analysis revealed small amounts of metal ions such as iron, zinc, strontium, manganese and copper. W.v.Bojanowski postulated that these ions in the powder acted as homeopathic remedies against tuberculosis.

From the very beginning *umckaloaba* was said to belong to the genus Polygonaceae, but from 1975 onwards JSO wrote that "Stevenskur" contained *Radix Umckaloabo* (Geraniaceae) [17] The true botanical name of the root was determined in the 1970s by ethnobotanical studies. S.Bladt, a pharmaceutical biologist from Munich University visited South Africa and found that *umckaloabo* was probably not the name of a particular drug but a Zulu word for the symptoms of lung diseases (*umKhulkane*). It may have been combined by Stevens with another word, *uHlabo*, which means breast pain. For these symptoms the South African natives widely used Geraniaceae species.

By comparitive botanical as well as chromatographic studies it could be proved that *Radix Umckaloabo* comes from *Pelagonium reniforme* Curt. The main components of drug extracts are cumarin glycosides, flavinoids and tannin. Roots of *P.reniforme* contain about 0.4% of 7-hydroxy-5,6-dimethoxy-cumarin (Umckalin)[19] Pharmacological studies have revealed slight antibacterial activity in drug extracts, but *Umckaloabo* is not a "vegetable germicide" nor an antibiotic against tuberculosis.[20]

Nevertheless, recent botanical and pharmacological studies show that Steven's cure was not a fraud like many other secret remedies which advertised an exotic origin.[21] Charles Henry Stevens brought a traditional South African medicine to Europe which has been used here for a century in the empirical treatment of pulmonary diseases



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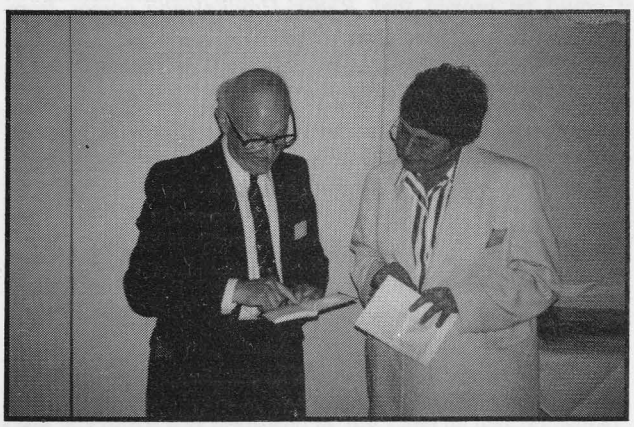
## Notes and References.

1. B.M.A.(ed.) *Secret remedies....*, London, 1909. For more than 2,500 secret remedies sold in Germany see, E.Hahn et al., *Spezialitäten und Geheimmittel. Ihre Herkunft und Zusammensetzung,* Berlin, Springer, 1906.
2. See A. Helmstädter, "Statisk zu Geheimmitteln im 19 Jahrhundert", *Pharmazeutische Zeitung,*139,(1994),pp.1435-38, and E.Ernst, "Das 'industrielle' Geheimmittel und seine Werbung...." *Quellen und Studieren zur Geschichte der Pharmazie,*12, Wurzburg, 1975.
3. Anon., Stevens v. B.M.A., *B.M.J.,*1912, pp.1170-71,1250-55. His physician was said to be a Dr Taplin,
4. *B.M.J.*, 1912, p.1251.
5. Ibid.
6. Ibid., p.1252.
7. According to the judgment of the Pharmaceutical Society's president in 1900 *chijitese* was a South African plant belonging to the Geraniaceae, see *B.M.J.*, p.1170.
8. *B.M.J.*, p.1251.
9. *Secret Remedies....*,p.22. The chapter on Stevens shows his advertisement letters.
10. Ibid., p.32.
11. See *B.M.J.*(1912) ref. 3 and pp.1341-44; *B.M.J.*(1914), pp.211-18, 267-74, 871-73.
12. A.Sechehaye, *Die Behandlung der organischen und chirurgischen Tuberkulose durch Umckaloabo Innere Heilmethode,* trans. from French by W. and I v. Bojanowski, Freiburg,1933; *Die Umckaloabo-Kur und ihre Anwendung bei allen Fromen der Tuberkulose,* trans. Bojanowski, 1936; *Umckaloabo in der inneren Behandlung der Tuberkulose,* trans. Jean Balzill, Reutlingen,1951.
13. *Gehe's Codex der pharmazeutischen Spezialpräparate....*, Stuttgart, 1953, p.863. JSO was founded by the pharmacist Johannes Sonntag, owner of the Engel Apotheke, Regensburg in 1923.
14. Sechehaye (1937),p.13; ibid.,(1951),p.27.
15. *Secret Remedies*, p.32.
16. Sechehaye (1937) pp.5-8 referring to the pharmacist Jules W. Brun who sold *umckaloabo* in Switzerland and made some analyses, as well as the German chemist and pharmacist, Dr K.Schantz of Freiburg.
17. *B.M.J.* (1912) p.1170; *Rote Liste*, 1975, Bundesverband der Pharmazeutischen Industrie, 1975.
18. See Sabine Bladt, "*Umckaloabo* - Droge der afrikanischen Volksmedizin",*Deutsche Apotheker Zeitung,*177,(1977),pp.1655-60.
19. S.Bladt & H.Wagner,"Cumarindrogen,1.Mitteilung: Qualitäts-prufung der Umcka-Droge und ihrer Zubereitungen", *Deutsche Apotheker Zeitung,*128, (1988), pp.292-96.
20. Very recently a multicentre study showed a benefit from *Umckalobao* treatment in cases of pulmonary infections in children.
21. These may be called "pseudo-exotic", e.g. see A. Helmstädter, "Nomen est omen? Pseudoexotische Fertigarzneimittel", *Pharmazeutische Zeitung,* 138,(1993), pp.30-33.



Mr Rawlings and Dr Bierman discussing his paper

# Old Proprietary Medicines.

## F.H.Rawlings.

Two men, fifteen centuries apart, set the scene for the birth and growth of the production and sale of proprietary medicines. It begins with *Luke*, Ch.9,V.1, "Then He called his twelve disciples together, and gave them power and authority over all devils, and to cure diseases." From this the early Christian Church claimed the monopoly of the practice of medicine.

All "orthodox practitioners" were clerics under the jurisdiction of bishops who granted a licence to practise within their diocese. This monopoly had both benefits and disadvantages. It hindered the development of medical practice to such an extent that the teachings of Galen (130-200 A.D.) became almost a dogma and innovation was considered a heresy. There was too active support, based on faith and hope, for the healing powers of religious relics.

The physicians largely served the aristocracy whilst the poor relied on the benefits supplied by the monasteries, which were mainly concerned with pilgrims, and by the travelling friars.

The second influential man abolished all this and did not effectively replace it. In 1512 Henry VIII passed an Act which made it an offence to practise physic or surgery unless the practitioner were a university graduate or had been licensed by the bishop of his diocese after an examination by a panel of experts.

Henry closed all the monasteries in 1539 and disbanded the friaries. This caused great problems as there were insufficient physicians and surgeons and now few hospices. Then in 1542 there was passed what is commonly called "The Quacks' Charter". It exempted from the penalties of the 1512 Act, those "divers honest persons, men as well as women, whom God hath endowed with the knowledge of the nature, kind, and operation of certain herbs, roots, and waters, and the using and ministering of them to such as be pained with custamable disease." Exemption could only be claimed by those who charged no fee except for providing the herb. This was upheld by a judgement in the reign of Charles I.

This Act enabled the itinerant quack, often with a great fanfare and adopting a French or Italian name, to set up his stall at country fairs. There, they sold bottles of coloured water or boxes of coloured and perfumed lard as cure-alls, and thus must have originated the saying "Here today and gone tomorrow". They are still with us,selling their bargain packs of perfume from stalls on the Saturday before Christmas.

The apothecaries, being less mobile and so more answerable, sold more reliable medicines, but must have seized the opportunity provided by the Act to develope the sale of their own favourite formulae. They flourished, and in London resenting their membership of the Grocers' Company they broke away in 1617. No doubt as demand grew for particular recipes, the apothecary created a stock of packaged items of pills and powders, selling them as his own proprietary medicines. Others entered the market too, physicians, surgeons, qualified and unqualified.



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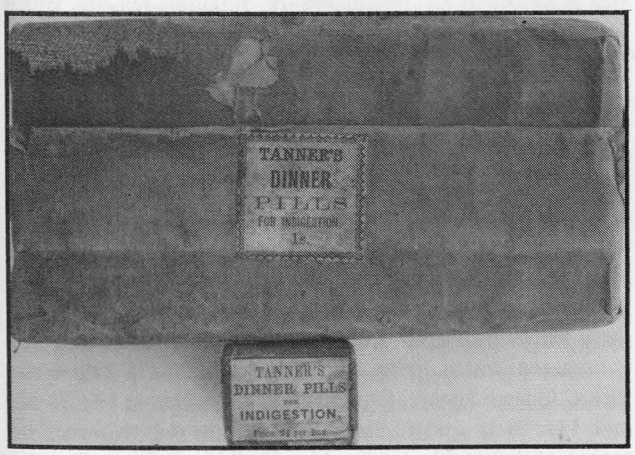
The Stuarts, always short of money, began granting patent-rights for new products including medicines. Anyone devising a new recipe could be granted for a fee a patent which granted the sole legal right to manufacture. It was not necessary to prove that it was efficacious, but undoubtedly ownership of the patent gave prestige to the nostrum, particularly if advertised with influential testimonials.

The first medical patent, No.354, was granted in 1695 to Nehemiah Grew, MD, FRS, for Epsom Salts. It was followed by Dr Stoughton's Cordial Elixir in 1712, and later by Turlington's Balsam of Life in its violin-shaped bottle (1744), and Thomas Wilson's Patent Ague Drops (1781) which evolved into Fowler's Solution or Liq. Arsenicalis. Although most of these eighteenth and nineteenth century medicines must be regarded as quack medicines some were admitted into reputable practice, such as Turlington's Balsam which became Tinct. Benzoin Co.

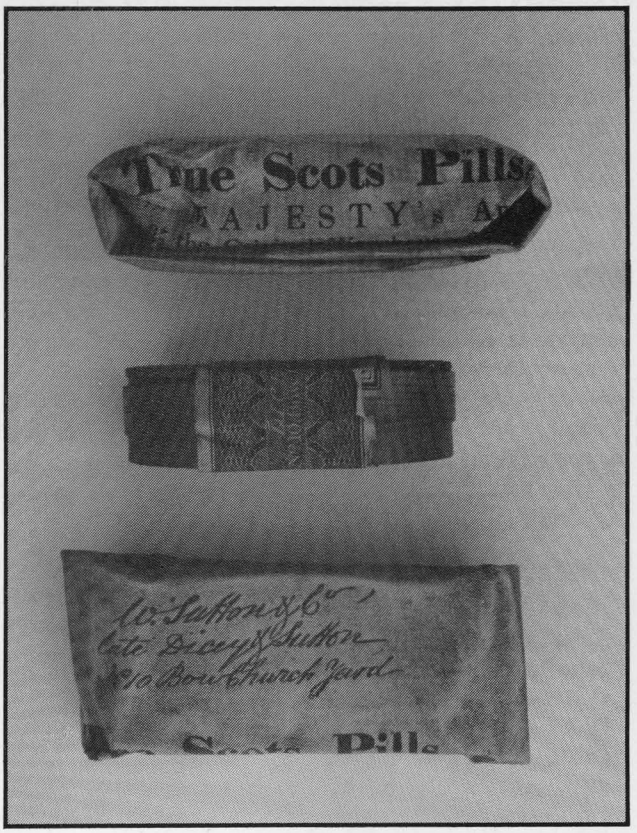
When reviewing the medicines of these centuries one gains the impression that the population was obsessed with the idea that once you have swallowed food then it should be rushed along to its final destination at the quickest rate possible, almost as though it were considered poisonous. As Roy Porter expresses it, "The consensus of contemporary medicine was that the stomach was the seat of most disorders."

To name only a few, there were Rackham's Liver Pills, Wait & See Pills, Dr Scott's Bilious & Liver Pills, Dr King's Dandelion & Quinine Bilious & Liver Pills, Tanner's Dinner Pills, Snook's Aperient Family Pills, to say nothing of the ubiquitous Beecham's Pill. Probably the first of this family of pills was Grana Angelica or Anderson's Scots Pills which we are told served as a "Sovereign Remedy against Diseases or Pains in the Head, Stomach, or Bellies of Men, Women and children, but especially against Giddiness, and thick Humours, Worms, Paleness, Green sickness, Defluctions on the Lungs or Joyntes...".




Original wholesaler's pack of one dozen Tanner's Dinner Pills, 1s. size, wrapped in brown paper and sealed with wax.

Bill Jackson has given us a detailed history of this pill which was sold from 1613 until at least 1916. (See *Pharmaceutical Historian,* 1987, vol.17,No.4) Dr Patrick Anderson described its virtues in a book published in 1635 entitled *Grana Angelica.* Anderson's daughter sold the formula to Thomas Weir, an Edinburgh surgeon, in 1686 and the secret remained with the Weir family until 1770 when it passed to a nephew Dr Thomas Irving. Then in 1863 the rights went to Mr J. Rogers, a family trustee, who sold the formula to Messrs. Paines Blanshard & Co and it remained in the catalogue of their successors until 1916.




The outer wrapper bears the words "By His Majesty's Authority" to induce the belief that George IV approved the remedy

Mrs Isabella Inglish pirated the pill in London. She is thought to have gained the knowledge when a servant to Thomas Weir. In 1707 she published in the *London Gazette* an advertisement for Dr Anderson's or the famous Scots Pills, warning of counterfeits from Scotland, "produced by broken Merchants, ignorant Tradesmen and scandalous Persons." The contest for the sale of the "True Scots Pills" continued in print for many years.

There are at least six different published formulae, all containing Barbadoes aloes with an assortment of other ingredients such as jalap, scammony, gamboge, senna and colocynth. Provided the ultimate results were the same, it is doubtful if the patients were concerned as to who was the maker. A clever copy was sold by W. Lambert of Charing Cross, London, as Dr Scott's Bilious & Liver Pills.

During this period churchmen continued to take an interest in medicine. The Reverend C. Carrington, vicar of Berkeley in Edward Jenner's time, marketed his Carrington's Vegetable Life Pills, "prepared only by Barry & Son" who had a public



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library and were booksellers and stationers at 21, High Street, Bristol. John Wesley wrote *Primitive Physic* which had reached its tenth edition by 1762 and lists over 700 remedies for about 230 complaints. It was intended for those people who were too poor to afford proprietary medicines, the cheapest of which were usually 1s.1½d.

Another such book was Buchan's *Domestic Medicine* first published in 1769 and continuing in print for almost a century. It is claimed that this book by William Buchan (1729-1805), a Scottish physician born in Ancrum, Roxburghshire, together with a copy of the Bible, could be found in every Scottish cottage. A number of nostrums were marketed using his name.

## Ingredients.

Effective ingredients were available to professional practitioner and nostrum manufacturer alike. Both could obtain mercury to be used as a specific for venereal infections, antimony as a febrifuge, opium as an analgesic and sedative or aloes, senna and rhubarb as purgatives The formulae of most of the early proprietaries are unknown, especially if only of local distribution, but those with the largest sales were frequently copied and published. They varied in detail but had the same basic main ingredient as may be seen in the case of Beecham's Pills.

| *Martindale, 1925.* | | *Secret Remedies*,1909. | |
|---|---|---|---|
| Aloes | 51.84% | 0.50 grains | 40.0% |
| Zingib.Pulv. | 25.08% | 0.55 grains | 44.0% |
| Sapo Puris | 12.00% | 0.18 grains | 14.4% |
| Coriander Pulv. | 5.40% | | |
| Ol.Rosmarin. | 0.87% | | |
| Ol.Junip. | 0.87% | | |
| Ol.Anise. | 0.20% | | |
| Oleores Capsic. | 0.11% | | |
| Oleores Zingib. | 0.55% | | |
| Magnes.Carb.Lev. | 3.08% | | |

I have traced published ingredient lists for over 300 named early medicines, and there must be many hundreds more as it is impossible to discover the contents for those with only local sales. Many sold under different proprietary names had in fact the same contents. Buchan illustrates this point under the heading, Balsams: "The subject of this section is not the Natural Balsams, but certain compositions which from their being supposed to possess balsamic qualities generally go by that name. This class of medicine was formerly in great esteem: modern practice however has justly reduced it to a very narrow compass."

He then lists: "Anodyne Balsam, Locatelli's Balsam, The Vulnery Balsam celebrated under the different names of The Commander's Balsam, Persian Balsam, Balsam of Berne, Wade's Balsam, Friar's Balsam, Jesuit's Drops, Turlington's Drops", and then gives the formula:

| | |
|---|---|
| Benzoin powder | 3 ozs. |
| Balsam of Peru | 2 ozs. |
| Hepatic Aloes powder | ½ oz. |
| Rectified Spirit of Wine | 2 pints. |

Digest in gentle heat for three days, then strain.

Another useful source for "kitchen physic" are the recipe books used in the home, mostly for cookery but occasionally as a recognised substitute for a named proprietary medicine. An example is one for making Stoughton's Drops:

"Infuse ½oz. Aniseeds, ¼oz sweet Fennel seeds, ½dram Coriander seeds, ½lb. Sun Raisins,stoned, ¼lb.Figs, split open, 1dram Cloves,and ½dram Mace in two Quarts of Brandy for eight days, then strain the Liquor off and put into it for a day or two ½oz Saffron in a linen bag. Bottle it and put into each pint a leaf of Gold cut small."

## Advertising.

Surprisingly even in the monastery there was an element of salesmanship by promoting their special medical services. The book *Living and Dying in England,1100-1548,* notes that the apothecary at the monastery at Westminster supplied gold pills by the box to their more affluent patients; the pills also contained absinth, horehound, pimpernel and pelesot.

The successful marketing of proprietary medicines in the eighteenth and nineteenth centuries depended on clever advertising building up faith in the product. Prospective customers had to be assured of the status and honesty of the promoter or the source of the formula. The product had to provide wonderful benefits for the largest number of complaints possible, preferably supported by testimonials from influential people. The names did not have to be well known but the titles had to be, such as a baronet, a bishop, a captain in the Royal Navy or professor of Latin.

The advertisers aimed at patients suffering from painful, unpleasant, serious, but not immediately fatal ones. The objective was a patient who was mobile, still earning a living who had found no relief from an apothecary or from kitchen physic. It was also important to stress the need for the medicine to be taken before symptoms became apparent. The nostrum was described as an "invaluable" or "infallible remedy" which worked when all others failed. A typical one is to be found in a Bristol paper of 1831:

"By the King's Patent, Dr Sibley's Reanimating Solar Tincture is universally allowed to be the most pleasant, safe and efficacious remedy ever offered to the public. Its worn and renovating qualities render it the best medicine for debility, Consumption, Nervous and Rheumatic Complaints, Spasms, Indigestion, Lowness of Spirits, and all those distressing affections which harass the weak,sedentary and delicate. It requires no argument to convince more than a trial, after which those who value health will never choose to be without it.

Prepared and sold by Mr J.R.Saffell, No.35 Gloucester Street, Queen Square, Bloomsbury, in bottles at 6s., 7s.6d., and 11s. each, and in family bottles (by which there is a saving of 7s.) at 22s. each. Also Dr Sibley's Lunar Tincture for complaints incident to the Female Sex, in bottles at 4s.6d. and 10s.6d. each."

Advertising occurred in newspapers but mostly it was by means of handbills pasted up in prominent places because it was cheaper. A large collection is to be seen at the British Library and have been reviewed in R. Porter's *Health for Sale - Quackery in England, 1660-1850.*



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The buzz word in late eighteenth century advertising was "scurvy" or "scorbutic". George Jones when advertising his Friendly Pills wrote, "The Scurvey causeth sore Throats, Gums and Looseness of Teeth with red Knobs in the Face and Body, briny sharp Humours behind the Ears and in other parts; it brings the Dropsie, Consumption, Feavers, Agues, Gout, and many other Diseases, the patients are assured, all of which are cured with this Pill."

Rennie wrote in the 1833 *Supplement to the Pharmacopoeia* that Lignum's **Antiscorbutic** Drops consisted of a disguised preparation of corrosive sublimate. He also related that the proprietor's name was originally Wood which he thought advantageous to translate into Latin. The advertiser for The Herculaneum Antidote advised that there were "few Diseases, but have a spice of the scurvy..." A cure was effected by "cleansing the Blood, Purging the Urine, and gently by Stool", act fast he urged before the disease re-addicted itself into the system and turned dangerously constitutional.

Bateman's Spirits of **Scurvy Grass** was available in plain or golden form, and he affirmed that Dr Dyke of Taunton supported this preparation. He also alleged that Blagrave's Spirits of **Scurvy Grass** had been pirated from him.

Regarding the cures for venereal disease, the advertisers were most discreet in their phraseology. In the Georgian period success was commonly claimed for Velno's Vegetable Syrup, Keyser's pills and Kennedy's Lisbon Diet Drink. Boswell was one of the many famous people who used the Lisbon drink at the cost of half a guinea a bottle, the course of treatment requiring two bottles a day. A 1782 advertisement in *Farley's Bristol Journal* stated, "Persons afflicted may cure themselves with the utmost privacy and even without the Knowledge of a Bed Fellow."

The strange progress of a syphilitic infection through its three phases meant that the nostrum promoter could always claim a cure. The primary stage can last up to twelve months whilst in the secondary and early latent phase, the patient may suffer rashes which mimic measles, smallpox and other skin conditions. During the later latent period there are no signs of the disease and the patient seems to be cured. The tertiary or chronic phase appears from three to ten years and again may mimic a number of conditions, including insanity, and would be so diagnosed.

Newspaper advertising was aimed at the literate and tended to be for more specific remedies. It has been estimated that Morison sold 800 million pills between 1825 and 1849, the calculations having been made from the payment of £115,000 in Medicine Stamp Duty. The wholesaler, Newbery, purchased 136 gross packets (i.e.19,500 packets) of James's Powders in 1769 alone. It would be interesting to know what industrial processes were used as this output can not have been hand-made.

This advertising was certainly enormously successful. Nathaniel Godbold, promoter of a Vegetable Balsam for the treatment of V.D., originally a baker, made £10,000 a year from his medicine, and invested in a country house near Godalming costing £30,000. Isaac Swainson, a woollen-draper who acquired Velno's Vegetable Syrup, claimed that he sold 20,000 bottles a year from which he derived an annual income of £30,000.

## Vendors.

When Edward Jenner developed his own stomach medicine, John Hunter wrote urging him to let a bookseller have it for sale, suggesting John Newbery & Co. as the leading publisher and distributor of commercial medicines. (Jenner also formulated some indigestion lozenges which Savory & Moore later marketed for him.)

During the eighteenth century the standardised brand name product began to develop. The improvement in transport with the arrival of turnpike roads which were later Macadamised, together with expanding banking facilities, stimulated the spread of these medicines over the whole country from the London base. This led to the development and expansion of the wholesaler, frequently printers probably because they distributed their newspapers in this manner. The recipients in the provinces were local printers, booksellers and stationers who became the retail outlet.

Thus newspapers became significant mouthpieces for proprietary medicines aimed at up-market customers, and selling agencies.

London wholesalers which appear in the *Bristol Mirror* of 1830.

| | |
|---|---|
| Barclay & Son | 95,Fleet Market. |
| Butler & Co. | 4,Cheapside. (The only successor to Jackson & Co.) |
| Mr Edwards | St. Paul's Churchyard. |
| Newbery & Sons | Ditto. |
| Sainsbury & Co. | Churchyard, Cheapside. |
| Sangers | 150, Oxford Street. |
| W. Sutton & Co. | Bow Churchyard. |

Local outlets in Bristol, 1850.

| | |
|---|---|
| D.Head | 90,West Street, Tinplate worker & agent for Whelpton's Vegetable Pills. |
| John Hutchings | 2,Whitson Street, Medicine Vendor. |
| Wm. Parsons | 29,Upper Arcade, Bookseller, stationer, binder & patent medicine vendor. |
| E.Pewter | 16,Clare Street, Stationer, bookseller & genuine patent medicine vendor. |
| Sarah M.Pike | 4,Mall Buildings, Proprietor of Pike's Powder |
| John Rees | 1,James Place, Serial bookseller & Proprietor of Dr Sydenham's Family Pills |
| John Ridler | 21,High Street, Bookseller, stationer, public library & medicine vendor. |

It is noticeable that there is not a chemist & druggist or pharmacist among them!





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*Medicines sold by William Pine, 1786*

| Name | Cost (s/d) | Cure | Name | Cost (s/d) | Cure |
|---|---|---|---|---|---|
| Adam's solvent | 6/9 | stone, gravel | Leyden Pills | 6/6 | anti-venerial, |
| Orient. Veg. Cordial | 5/2 | cholic, bowel | Dr Armstrong's Pills | 2/9 | scorbutic |
| Stoughton's Bitters | 1/2 | " | Jesuit's Drops | 2/10 | " |
| Dalby's Carminative | 1/10 | " | Friar's Drops | 3/8 | " |
| Dr James' Powders | 2/9 | fevers | Leake's Pills | 2/1 | " |
| Dr Norris' Drops | 2/9 | " | Velno's Veg. Syrup | 11/6 | " |
| Bateman s Drops | 1/2 | colds, coughs | Steer's Opodeldoc | 2/ | cuts, bruises |
| Squire's Elixir | 1/8 | " | British Oil | 1/2 | " |
| Greenough's Lozenges | 1/10 | " | Jackson's Tincture | 1/2 | " |
| Dawson's Lozenges | 1/2 | " | Friar's Balsam | 1/2 | " |
| Hill's Honey Balsam | 3/2 | " | Patent Ointment | 1/10 | itch |
| Essence of Coltsfoot | 3/9 | " | Volatile Essence | 1/6 | " |
| Crawcour's Dentrifice | 2/10 | teeth | Wheatley's Ointment | 1/10 | " |
| Asiatic Tooth Powder | 2/2 | " | Spilsbury's Drops | 5/ | scurvy, gout |
| British " " | 1/2 | " | Snell's Ointment | 6/ | " |
| Toothache Tincture | 1/2 | toothache | Hill's Ormskirk Med. | 5/6 | mad dog bite |
| Hamilton's " | 2/10 | " | Wace's Asthmatic Drops | 3/8 | asthma |
| Maredant's Drops | 5/5 | | Vandour's Nerv. Pills | 2/10 | nerves |
| Hypo Drops | 4/2 | | Hooper's Female Pills | 1/2 | female maladies |
| Inglish's Scots Drops | 1/4 | | Arabian Oil | 2/2 | sprains, rickets |
| Wilson's Pills | 1/2 | | Godfrey's Cordial | 8d | painkiller |
| Analeptic Pills | 4/6 | | Cephalic snuff | 10 | headache |
| Turlington's Balsam | 2/1 | | Thompson's Ague Tinc're | 1/4 | ague |
| Daffy's Elixir | 1/8 | | " Antiscorbutic Pills | 1/10 | scurvy |
| Dr Becket's Restorative | 11/ | | Corn plaster | 1/2 | corns |
| Sticking Plaster | 6d | bandage | Franklin's Cornsalve | 1/6 | " |
| Smyth's Restorative | 11/6 | ?VD? | | | |

Medicines sold in 1786 by William Pine printer of the *Bristol Gazette.*

## Signs of the Medicine Vendors.

### The late Dr T.D.Whittet.

In the sixteenth and seventeenth centuries most tradesmen displayed signs on their shops and often had them printed on their trade cards or bill-heads. The vendors of medicine, usually apothecaries, chemists or druggists, but also other tradesmen and quacks used a variety of signs. With the numbering of street buildings the need for signs was removed, but many general signs were retained by pharmacists and some of them even used their own special signs.

Probably one of the earliest signs used by medicine vendors was the cross. This was often red, especially in England, but after the Geneva Convention of 1864 officially adopted the red Greek cross as its symbol many countries changed to other colours. The earliest example of a red cross used by an apothecary so far found by the author is that of William de Batonia, an apothecary member of the London Pepperers' Guild who lived in 1273 "Without Cripplegate". Simon Forman, one time apothecary's apprentice who turned to astrology, used the symbol on his premises in Watling Street in 1595.

A well known pharmacy which used it for over two hundred years was that founded in 1732 by William Jones, chemist & druggist, at 24, Russell Street, Covent Garden.

The firm was transferred to Letchworth, Hertfordshire, in about 1900 and still retains a red cross on its facade, one of the few pharmacies in Great Britain to do so.[1]


The billhead of Richard Staveley, druggist & chymist at the Red Cross in Fenchurch Street, London.

James Petiver, friend and correspondent in the late seventeenth century of those interested in natural history, besides being apothecary to the Charterhouse had a pharmacy in Aldersgate Street which bore a white cross, and there are still pharmacies with white crosses in London and neighbourhood. In France the usual pharmaceutical sign now appears to be a green cross often with a bowl of Hygeia superimposed, whilst in Luxembourg and Poland the cross is more usually blue. Australian pharmacists have adopted the golden cross, a symbol which had once been used by a druggist in London called Webb in 1726.



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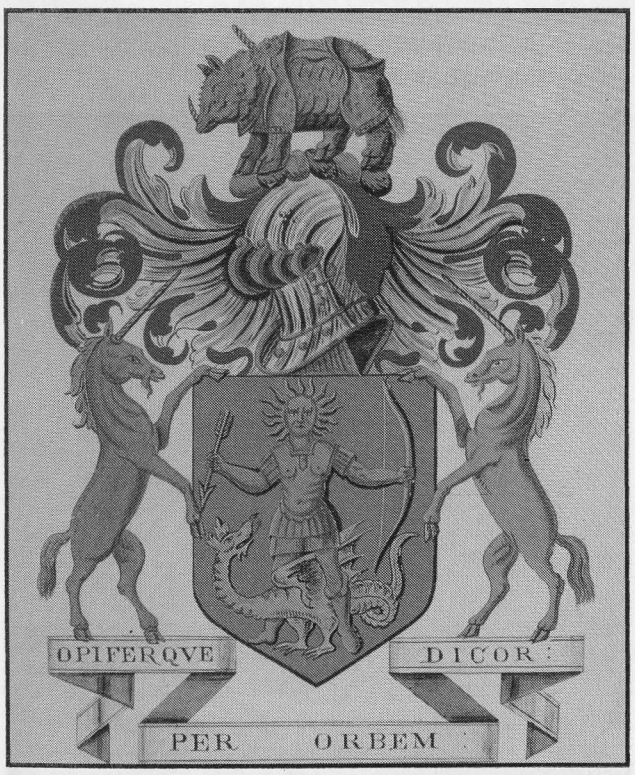
## The Apothecaries' Company arms.

The English apothecaries frequently used the arms, whole or in part, of the Society of Apothecaries of London as a trade sign. The arms consist of a shield with Apollo astride the dragon of disease holding a bow and arrow. Two unicorns are supporters and the crest is that of a rhinoceros. The unicorn was also used by apothecaries in other countries such as the Unicorn Pharmacy in Gothenburg where Karl Wilhelm Scheele was apprenticed. English examples were those of John Conyers in Fleet Street, London in 1665, and Henry Rugge in Castle Street, Dublin ten years earlier, whilst Dr Anderson's *True Scots Pills* were sold at the Golden Unicorn in the Strand in 1699. The trade card of Collet Mawhood in the London Museum a wealthy druggist, shows that he was to be found at "the Golden Lyon & Unicorn, over against ye West end of the New Exchange in ye Strand."

In the seventeenth century many English apothecaries issued trade tokens as an unofficial method of giving small change, and these frequently bore the figure of Apollo or else a rhinoceros as was the case of Stephen Garner of Nottingham.




The Arms of the Society of Apothecaries of London

A few apothecaries used a cock as a symbol, the bird being an object of sacrifice or thanks offering in the temple of Aesculapius. Joseph Ashe of Coventry in 1617 used a cock as did an apothecary in Snow Hill, London with the initials of A.C. Another bird was the phoenix which was a favourite of those apothecaries who were also chemists. Ambrose Godfrey Hanckwitz, friend and colleague of Robert Boyle, had a pharmacy at the Golden Phoenix in Covent Garden in the late seventeenth century, and a letter-head dated July 1737 of Thomas Shilburn, chymist & druggist, shows his pharmacy at "ye Golden Phoenix in Brewer Street, Golden Square."

Those apothecaries with chemical leanings or "chymists" often used the head's of people famous in the early days of chemistry, such as Boyle's Head, Glauber's Head, or Paracelsus' Head, or more simply, the "chymist", Richard Siddall who made both "Chymical and Galenical medicines" at the Golden Head in Panton Street, London.

C.R.Meadows has written that the dragon was regarded as a symbol of magic and mystery, of health and disease, consequently apothecaries frequently used it as a sign and trademark.[3] It is known that Francis Hall and John Holmes who frequently advertised remedies during the Great Plague of 1665 were at the Green Dragon, Cheapside and Basinghall Street, London, respectively, as was Joseph Cruttenden, an apothecary who traded overseas in the next century. Then there was the famous retail and wholesale chemist & druggist's firm of Corbyn, Stacey & Co. who used the trademark of 'The Bell and Dragon.'

## Pharmaceutical Apparatus.

It was natural that the tools of the apothecaries should be used as signs and there are many examples of the mortar and pestle or the mortar and two pestles. One famous user was Daniel Malthus, Royal Apothecary and grandfather of the demographer, whose pharmacy in Pall Mall was next door to the practice of the physician Thomas Sydenham. Variants on this theme were the King's arms and Pestle and Mortar used by Thomas Greenough, apothecary and inventor of the famous toothache tincture, the Bear and Mortar, and the Lion and Mortar and Pestle used by Alexander Aickin of Skinner Row, Dublin. Mortars complete with pestles are still to be seen over pharmacies in Scotland.

Christopher Packe practised chemical medicine at the Globe and Chemical Furnace, and a man called Morton, a "chymist" sold remedies during the Plague at the Golden Still.

Bookplate of Ambrose Godfrey Hanckwitz, chemist, showing chemical apparatus and the Phoenix.

After the founding of the Pharmaceutical Society of Great Britain in 1841, some pharmacists began to use the Society's arms on their trade cards and bill-heads, although its use has since been discouraged.[2] Perhaps the most characteristic sign for pharmacy in Great Britain is, or was, the carboy filled with



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various coloured waters, often displayed with a fine specie jar. The origin of this symbol has been much discussed. Thompson was of the opinion that it had originated with the druggists in the latter half of the seventeenth century who bought drugs in bulk and sold them retail and wholesale, including the fashionable aromatic waters. George Urdang on the other hand was of the view that they were derived from the early "chymists" or "preparers of chemical medicine" who came under the supervision of the London College of Physicians by an Act of 1553.

### Notes and References.

1. Since the above was written this pharmacy has been preserved as a museum.
2. The Pharmaceutical Society has now introduced a variant of the green cross as a "logo" for its members to use.
3. C.J.S.Thompson, *The Mystery and Art of the Apothecary*, London, 1929, John Lane, chapter 19; G.Urdang, "New light on the Origin of Show Globes", *J.Amer.Pharm.Ass.*, 1949, 10, 604-6.

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## Studies in Cinchona Bark.


### Dr J.Burnby.

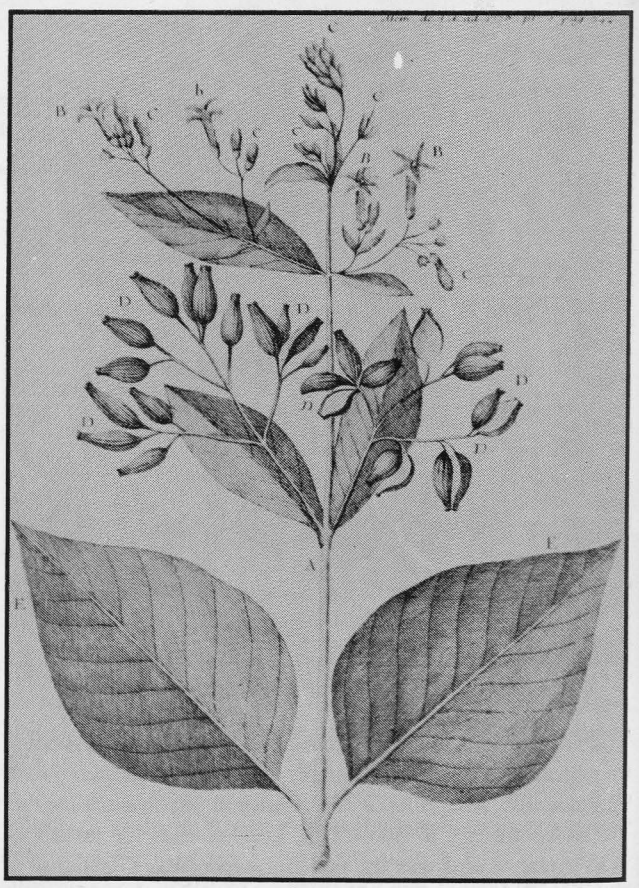

There are few botanical products which have attracted more interest than the Cinchona barks, first introduced into European medicine in the years between 1630 and 1635. Its use was enthusiastically advertised by the missionaries of the Society of Jesus, so much so that it was often known as Jesuits' Bark. There has been much discussion as to who first wrote about Cinchona in Europe. Dr Jaime Jaramillo-Arango, after careful and detailed study, has come to the conclusion it is to be seen in a document called the *Schedula Romana*. The authorship of this ordinance has been attributed to Pietro Paolo Puccerini, apothecary of the pharmacy of the Collegio Romano, first printed in 1649. [1]

The directions for use in quartan and tertian fevers were, "Two drams of finely ground and sieved Bark to be mixed in a glass of strong white wine three hours before the fever is due; and as soon as the shivers begin or the first symptoms noted, the patient is made to drink the whole infusion thus prepared and put to bed....The constant use of this remedy has cured practically all the patients who have taken it, having at first well cleared the bowels....It must be used only on the advice of the physicians who may consider whether it is timely and appropriate to administer it."

The first written mention in English of its use occurs in the case-book of John Metford of Northampton in which a pregnant woman suffering from a severe quartan fever was cured with it in 1656, whilst the earliest advertisement occurs in the weekly news-sheet *Mercurius Politicus* of 1 July 1658. It related that the powder had been brought over by James Tompson, a merchant of Antwerp, and was to be obtained either at the Black-Spread Eagle over against Black and White Court in the Old Bailey, or at the shop of Mr John Crook at the sign of the Ship in St. Paul's Churchyard, a bookseller. The first English physician to write on the bark was Thomas Willis in 1660, but it did not appear in the *Pharmacopoeia Londinsensis* until the third edition of 1677

The most usual method of taking the ground bark was in wine but was so unpleasant and bitter that it did not find great favour with the public unless the patient were desperate. The apothecary Robert Talbor (1639-1681, later Sir) devised an infusion, an alcoholic tincture and a wine made by macerating the powdered bark in port wine for a week which were pharmaceutically more elegant. John Huxham M.D.(Rheims) (1691-1768) prepared a compound tincture by macerating the bark, yellow Spanish oranges, Virginian serpentary root in brandy in a closed vessel for some days and straining. It appeared in his *Essay on Fevers* in 1755 and proved popular.

The identification of the botanical origin of the bark proved controversial as there are many species which readily hybridise, and the number of varieties of Cinchona are said to now exceed 150. In 1738 De la Condamine identified one species growing close to Loxa in Peru which in 1753 Linnaeus named *Cinchona officinalis.* It was also known as Pale Cinchona, the red bark from *C. succirubra* not being known in Europe until the last quarter of the eighteenth century.



De La Condamine's drawing of the Cinchona tree to which Linnaeus gave the designation " officinalis " in 1753



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A physician at Guy's Hospital, William Saunders, became one of the early advocates of this red Peruvian bark. He compared it favourably with the pale form but made the error that he thought the two barks came from different parts of the same tree and not from different species. He wrote on the subject in 1782 and related how the red bark came to England by chance. In 1779 a Spanish ship from Lima en route for Cadiz was captured by the frigate *Hussar* and carried into Lisbon. The cargo consisted chiefly of this red bark much of which was bought at very low prices at Ostend by some London druggists but who had great difficulty in selling it. It was then offered for trial to such apothecaries as lived in counties where agues were frequent.

Saunders claimed that it proved to be superior to the pale type and was introduced into the hospitals. He obtained some specimens and induced a young student at Guy's, Thomas Skeete, (1757-1789) to experiment with it. Later Saunders made extensive studies of Cinchona on his own account, publishing in 1786 his *Experiments and Observations on Quilled and Red Peruvian Barks.*

William Saunders (1743-1817, MD.Edin., FRS, FSA ) son of James Saunders, apothecary & surgeon of Banff with an MD.of Aberdeen, had a particular interest in both chemistry and pharmacy. He is said to have made £1,000 a year on coming to London by his lectures in Covent Garden on these two subjects, and in 1766 published a 24 page syllabus of the lectures, as well as a catalogue of *materia medica.* He collaborated with George Baker, using his chemical knowledge, in the latter's investigations into Devonshire Colic. Baker helped him to obtain his appointment as physician to Guy's in 1770, and many years later Saunders in his turn helped Alexander Marcet (1770-1822, M.D.Edin.) to obtain the same position. Marcet with William Babington and the pharmacist William Allen gave chemistry courses which were illustrated by demonstrations at Guy's from 1807 to 1820.

Rather unexpectedly in such a journal, there is in the *European Magazine* of August 1790 a long letter from Saunders to Dr Simmons on the subject of a new extract of Bark.[2]

"At your request I send the following particulars of the New Extract of Peruvian Bark prepared in South America and lately imported into this country from Spain as an article of commerce

It is of a consistence between the soft and the hard extracts of the shops, of a dark colour and beautifully transparent. It is extremely soluble in the mouth and has none of that empyreumatic or burnt taste common to all extracts and which obscures the original power. It is very soluble in boiling water and when gently agitated with it in the proportion of two drachms to one pint of water, it gives an impregnation more powerful than the Decoction of Bark in the proportion of an ounce of Bark to one pint of water. One ounce of it softened with two ounces of boiling water and digested with one quart of proof spirit in a gentle heat gives a more powerful tincture than that of the Dispensatory. The residuum left on the filter weighs two scruples and is perfectly insipid

It differs very materially from all other Extracts of Bark with which it was compared, and even from some which are carefully prepared from the best Bark and slowly evaporated on a water bath. In its union with boiling water it resembles so much the Decoction of the pale Bark, both in colour and sensible qualities, that the difference is imperceptible and by this synthetic test it may be distinguished from all other Extracts of Bark.

In collecting from various Druggists Extracts with a view to a comparison, many of them appeared to be sophisticated by being chiefly composed of Extract of Gentian, an article of the Materia Medica better formed for such than almost any other.

No information has been received relating to the method used in the preparation and so I conjecture it may have the advantage of an aqueous solution made from recent vegetable matter and that inspissation or evaporation was conducted by exposure to the air and heat of the sun.

I have made frequent trials of it, both in hospital and in private practice, and have uniformly found that it has done everything which could be expected from the best Peruvian Bark in any form. There are some favourable reports from other practitioners. It sits easy on the stomach and in cases of great emergence, as in gangrene and malignant fevers or the putrid diseases of warm climates, where the life of a patient may depend on the quantity of efficacious Bark taken in a few hours, it must have a decided advantage. A patient may take four ounces in a day, a quantity equal in power and effect to a pound and a half of the best Bark. It is efficacious in the cure of fevers in the form of a clyster, for which I have dissolved a drachm in four ounces of water. This is well adapted to children and to those as cannot retain the Bark in any form on the stomach.

Unless.. it becomes the subject of adulteries [sic] it promises to become a very important acquisition to the list of our useful and active remedies. The solution of it in boiling water will be found a ready and easy substitute for the Decoction and at an expence not exceeding the Decocotion of such Bark as ought generally to be employed.

New Broad Street. Feb.11,1790."

Obviously Saunders was a man who was not afraid of experimentation and one would like to have had his reactions to the arrival of the alkaloid quinine.

## Notes and References.


1. J.Jaramillo-Arango, *The Conquest of Malaria*, London, 1950, Heineman, p.51.
2. Probably Samuel Foart Simmons (1750-1813) who started his medical studies when only fifteen with Henry Saffory, apothecary and surgeon in London, but later gained an MD of Leyden.




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## Review.

*The History of Pharmacy: A selected annotated bibliography.*
by G.J.Higby and E.C.Stroud.
Garland Publishing Inc., New York, 1995. pp.334, $50.
ISBN 0-8240-9768-8.

The book is divided into three main subject areas, Bibliographies and General Studies, Special Subjects, and Pharmacy in the Arts each of which is in turn sub-divided. The fields covered include pharmacy practice, the history of drugs, manufacturing and equipment, laws and regulations. It claims to be a comprehensive survey of important English-language publications but as far as Britain is concerned is remarkably uneven. Included are a few articles from the *Pharmaceutical Journal,* but none of Kenneth Holland's company profiles which now amount to over thirty, or Professor Shellard's ten-part history of pharmacognosy. Charles Robinson's "Memoirs of a 20th. Century Druggist" (in eight parts), Leslie Matthews' "The Bond Street Apothecaries" (eight parts) or R.E.M. Davies' "Dr Richard Stoughton and his Great Cordial Elixir" and many others do not warrant a mention. There are two references to articles in the *Chemist and Druggist* but neither is from the important 'Special Issues', which graced that journal for so many years It is disappointing to find only five notices of articles which have appeared in the *Pharmaceutical Historian.*

The final verdict, (for this country at least) is the one found on too many of our school reports,- "Could do better "

J.B.

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**From an article, "Real mysteries of Paris & London," which appeared in Charles Dickins' *All the year round,* 27 October 1860:**
abstracted by A.Morson.

"At the back of that suburban terrace, in which it is my fortune to reside when in London, is a row of shops which supply the neighbourhood with all the things they want and in some cases with a few articles, as it would appear, which they do not want. In that small row are two (and used to be three) enormouse medical halls or chemist's shops. Next to the luxury club-house, or the abode of a stockbroker on the eve of ruin, comes the gorgeousness of those two temples of pharmacy. You are bewildered on entering them by the blaze of glass and gildings, you are rendered faint by delicious odours, you are restored again by draughts of medicated waters which gush forth into long tumblers at the touching of a spring. Now, how are these palaces kept going? I pass them often, but never see anyone making a purchase, or giving an order. Their proprietors, too - both miserable men, one being a specimen of pale misery, and the other, which is much more more terrible, of rosy misery - are forever increasing their expenditure and whenever Floridus gets a new scent and sticks it in his window, or a flesh brush, or a galvanic battery, or whatnot, Pallidus is obliged to follow his lead, and the next day the same goods will appear in his shop as surely as the morning comes round.

Now, the reason why it seems so extraordinary and mysterious that those two druggists are able to keep their heads above water is, that it appears to the writer that every member of his acquaintance gets his or her medicines either from Bell & Co, or from Messrs Savory and Moore, as the case may be. It is true that on one occasion , when I had been dining with the Surgit Amaris, that eminent Greek firm in the city, and found that on my return that I had no carbonate of soda in the house - it is true that I then rushed forth in wild haste, and luckily finding - it was Saturday night - that the emporium of the rosy sufferer was still open, I purchased an ounce of the medicine of which my heated frame stood in need. It is impossible to describe the sensation made by the giving of this order. A boy pining in secret behind a desk, sprang suddenly into life, and instantly summoned the great Floridus himself from the back parlour, where he was perhaps supping on more lozenges and iceland moss, washed down with soda water from the fountain. Both man and boy were kept in violent commotion for at least ten minutes, by my order. It was entered in books - double-entered perhaps - the drug itself was wrapped in paper, and the parcel so made was lapped up at the end, then the soda was shaken down into the lapped-up end, at which point Floridus made a remark upon the weather, and I, looking round the shop and noting its magnificense, hoped that the medicine would not come to less than fourpence.The parcel was now lapped up at the other end and shaken down in turn to that extremity, when Floridus made a second remark upon the weather, including the subject of crops, and I, seeing that another piece of magnificent paper was going to be pressed into service, began to think that I should feel miserable if my purchase came to less than sixpence. When an outer paper, thick and soft and smooth, was laid upon the counter, and the already sufficiently protected soda was placed upon it, I would have given much to have been allowed to clutch my purchase, pay my money, and rush out of the shop. But this was not to be. New expenses must be incurred by the firm with which I was dealing, in supplying me with a coloured wrapper over all, in vast outlays of sealing-wax, and finally, in the addition of an adhesive label, with "Carbonate of Soda" engraved upon it in the best style of writing. When the miserable Floridus announced that all this only came to threepence (it would have been a relief if he had said "thruppence") I felt that men had sunk into the earth for less offences than I had been guilty of in making such a purchase".

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# PHARMACEUTICAL HISTORIAN

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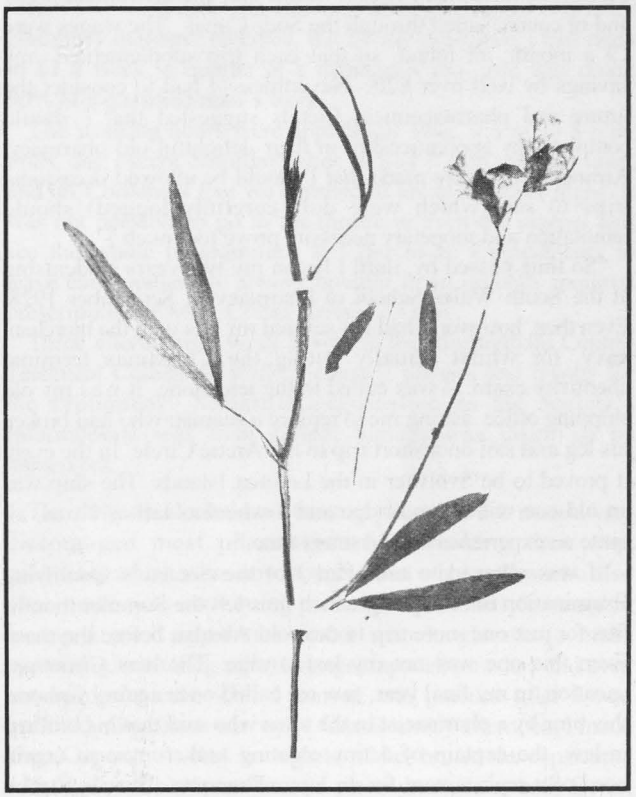
## DIARY DATES.

Thursday, 12 Sept. 1996. History Session, B.P.C. Glasgow.
"The Discovery of Aspirin" by Dr Walter Sneader.
"The 'Curious Medicines' of Dr Douglas: an 18th. century doctor's materia medica" by Dr Francis McKee.

## "MR SWEET PEA HIMSELF": Bernard Rees Jones.

It was early in November 1988 that I first heard from Bernard. He had just finished reading, *"And they blew exceeding fine", : Robert Uvedale, 1642-1722*, written by the late Audrey Robinson and myself back in 1976. Uvedale, master of the Grammar School at Enfield and plantsman is credited, on no less an authority than that of Leonard Plukenet, with having introduced the Sweet Pea into this country - and Bernard Jones was a great Sweet Pea enthusiast! It is generally agreed that *Lathyrus odoratus* is a wild flower of Sicily and that Father Francisco Cupani of Palermo was the first to publish a description of it in 1697, and being a correspondent of Uvedale soon sent him some of the seeds. Plukenet described it in his *Mantissa* (1700) and James Petiver, apothecary to the Charterhouse, against the speciman in his herbarium wrote "This elegant sweet flowered plant I first observed with Dr Pluknet in Dr Uvedale's most curious garden at Enfield and since at Chelsea and elsewhere." (Hort. Sloane, vol.171./248.)

Earlier in 1988, there had been a great gathering of the National Sweet Pea Society at Wem, Shropshire, to commemorate the work of Henry Eckford, and now Bernard had conceived the idea of similarly commemorating Robert Uvedale in 1999, three centuries after the year he first grew the plant here. Bernard was keen to plant the Cupani Sweet Pea, which still exists, in Enfield on land once cultivated by the schoolmaster. Some interest was shown by both the headmaster of the Grammar School, Mr W.E.Thomas, and Mr D.Stacey of the Parks department, but unfortunately the attractive idea never came to fruition. Not that Bernard expected to be there in the flesh on the great occasion as he was already over eighty.



Dried specimen in Uvedale's herbarium (Hort. Sloane 308 f. 55)





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One may well wonder what the connection is with history of pharmacy, the answer is that Bernard Jones was a pharmacist with a most unusual career pattern, which at my urging he was kind enough to give me some details.

"I was born in London but was brought up by an uncle and aunt in the Welsh seaport town of Swansea where I was educated in its superlative Grammar School. There I achieved the Higher Certificate of the Central Welsh Board (equivalent to "A"levels) in Latin, French and History, odd subjects for an eventual pharmacist but ones I never regretted. A temporary job as a shipping clerk introduced me to the skippers and crews of a large tanker fleet, in the phenomenal days of Gulf oil."

"However, I soon became attracted to pharmacy by the success of a close friend, Douglas Harries, and the gift of his *British Pharmacopoeia*. I commenced an apprenticeship in a new pharmacy but it was abruptly cut short in the second year by the business transferring to a distant English town."

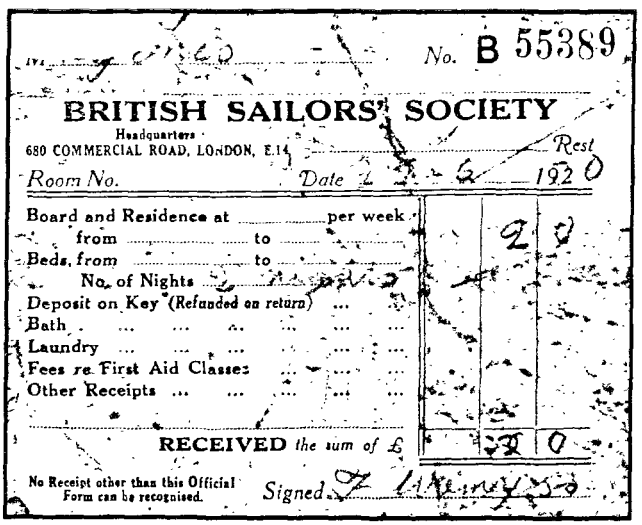
"Soon after this I had to become self-supporting, but most fortunately happened to meet a tanker skipper who suggested a trip to the West Indies as an assistant to the steward. I quickly accepted and it proved a turning point. Life at sea came to fascinate me and I became imbued with a strong wish to become a "real" merchant seaman, an "AB working on deck, watch and watch about", that is four hours off and four hours on, night and day, living "for'ard" in the "fo'c'sle" that is "before the mast", and above all to steer the ship."

"During the next few years, I made several trips, mainly to Abadan in the Persian Gulf, but also to America and the West Indies, the Continent, Indian Ocean and Mediterranean ports, and of course sailed through the Suez Canal. The wages were £9 a month, all found, so that each trip supplemented my savings by well over £20. Nevertheless, I had to consider the future and pharmaceutical friends suggested that I should complete my apprenticeship in their delightful old pharmacy. Arrangements were made that I should be allowed occasional trips to sea (which were duly carefully logged) should temptation and monetary necessity prove too much."

"So time passed by, until I began my two years studentship at the South Wales School of Pharmacy in September 1928. Even then, however, I had not severed my ties with the merchant navy, for whilst actually sitting the Christmas terminal chemistry exam., I was called to the telephone. It was my old shipping office asking me to replace a seaman who had broken his leg and sail on a short trip to the Arctic Circle. In the event it proved to be Svolvaer in the Lofoten Islands. The ship was an old one with open bridge and a wheel as tall as I was, all quite an experience at Christmas time."

"I was allowed to take Part I of the Society's Qualifying Examination in the Spring which thus left the Summer months free for just one more trip to dear old Abadan before the mast. Even this one was not my last voyage. The next Christmas vacation, in my final year, saw me called once again by phone, this time by a pharmacist in the town who said that his brother-in-law, the captain of a tiny coasting tanker, was in urgent need of a replacement for an injured seaman. The destination was Iceland - and would I oblige? I did of course, and it was the last of my trips as a merchant seaman, the earnings from all of which plus a surprise municipal grant of £30 and a loan from another aunt tided me nicely through the remainder of my student days."

"I took the Final Qualifying written examination in 1930 at Cardiff. Fellow students and myself went there by train but parted at the station, they went to hotels but I spent the next two nights at the Sailors' Home, Bute Road, Tiger Bay, at a shilling per night. There were six or eight beds in the rooms, most of the others occupied by foreigners who kept me awake both nights. The practicals were taken at Bloomsbury Square, and I put up for two or three days in Doughty Street near where Dickens had lived."


No. B 55389

BRITISH SAILORS' SOCIETY

Headquarters
680 COMMERCIAL ROAD, LONDON, E.14

Rest

Room No. Date 1920

Board and Residence at ... per week
from ... to ...
Beds, from ... to ...
No. of Nights
Deposit on Key (Refunded on return) ...
Bath ...
Laundry ...
Fees re First Aid Classes ...
Other Receipts ...

RECEIVED the sum of £

No Receipt other than this Official Form can be recognised.

Signed

"After qualifying I joined the London Hospital where I married. We lived in Bromley and there I tried to grow Sweet Peas, with such surprising and remarkable success that I won two prestigious cups. Then I moved to Bristol General Hospital, a teaching hospital, and finally to the dear hospital I eventually retired from in 1972. All this time the Sweet Pea hold became ever tighter and now rules me."

Bernard Jones had no doubt that his pharmaceutical training with its emphasis on accuracy and forethought was the basis for any success he had had in pharmacy or floriculture. Sadly, full of years Bernard's remarkable life came to an end on 25 January 1996 but the lovely Sweet Pea "Mrs Bernard Jones" continues to blossom in these hilly uplands.

J.B.



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# 1st. SEPTEMBER 1932 - AN IMPORTANT DAY FOR PHARMACY.

F.OLIVER.

The first of September 1931 is important to pharmacy for three reasons:
1. I entered pharmacy and found I did not like it! There was insufficient chemistry, insufficient dispensing and the hours were too long.
2. The second post brought a book, *The British Pharmacopoeia*, 1932. As he handed it to me my Boss said, "There, you've got to learn everything in it"; one look inside nearly sent me home
3 This was the time when *secundem artem* went out of pharmacy and science came in.

It was really Pasteur's recognition that infectious diseases were caused by micro-organisms which led to the search for agents to eradicate infections without harming the body. This was stimulated by Ehrlich's discovery that Arsphenamine was active against the spirochaete of syphilis. In 1930, Domagk discovered that the antibacterial effect of the azo-dye Prontosil was due to its breakdown in the body to sulphanilamide, and this led to a now common research method of investigating thousands of related compounds. Such a method was employed for the discovery of Sulphapyridine (M & B. 693) in the mid-1930s

The *Pharmacopoeia* of 1932 was very different from its predecessors. For the first time in this country we had a pharmacopoeial Commission which was fully representative of all interested professions and pharmacy was amongst them

The greatest changes were the doubling of the appendix due to the inclusion of biological assays and methods of preparing sterile solutions, as well as to some important new additions, such as the vaccines and antitoxins. An almost revolutionary one was Detoxicated Diphtheria Toxin as the illness was a scourge at that time. I remember at school in 1930 that three children died of "dip" because the doctor diagnosed a "cold fever" and refused to do a Schick Test

Hormones now appeared in the *Pharmacopoeia* such as insulin, posterior pituitary extract, thyroxine-sodium and dried thyroid This new Thyroid B.P. was five times as strong as the old fresh thyroid and was apt to cause confusion. Our nearby newsagent had been taking the old fresh gland with little beneficial effect, but on being prescribed Thyroid B.P the results were remarkable.

Standardised Digitalis represented a very big advance 150 years after Withering's discovery of the use of *Digitalis purpurea* in congestive heart failure It was only possible to standardise it thanks to the statistical methods developed by a researcher working in a brewery, previously different samples had variable potency so that the patient required close monitoring

The barbiturates made their appearance and phenobarbitone proved of great value in epilepsy, and was much prescribed. I could not understand why the BBC had to issue so many S.O.S. messages for lost or stolen phenobarbs until I worked in a psychiatric hospital Cocaine substitutes such as Orthocaine were also now found.

The number of pills was reduced to only eight, the theory being that the prescribing of drug combinations in this form should be left to the individual doctor. Of tablets there was only one, Glyceryl trinitrate, although tablets were rapidly replacing pills because they were easier to make on a large scale and furthermore disintegrated more quickly in the body. The *National Formulary* recognised the importance of tablets devoting four of its fifty pages of formulae to tablets.

Notable absences from the B.P. were antibiotics which had not been discovered, and chemotherapeutic agents (the first sulphonamide is not found until the 1936 addendum), central nervous system drugs and diuretics

## On becoming a pharmacist in the 1930s.

Although some pupils stayed at school to take the Higher School Certificate in the three appropriate sciences, most left at sixteen with a School Certificate possessing the five required credits, all on one certficate, and started work in a pharmacy or hospital as the sole apprentice. Such places were not easy to find but thanks to a local wholesaler I had the good fortune to find an excellent pharmacist and apprentice-master in Mr F A.J.B Lewis who had just opened his own pharmacy.

Although the previous generation had had to pay a premium for their training this had now ceased, and most pharmacists gave a small allowance Mr Lewis, more generous than most, paid me 10s (50p )a week, out of which I paid 1s.(5p) for laundry and 1s.7d National Insurance stamp Thus I took home 37½p , of which I gave 25p to my mother, leaving me with 12½p.to spend. The 10s. was about an eighth of what a pharmacy manager received, but by my third year I had risen to £1 a week, a quarter of a manager's pay, and was doing 90% of a qualified man's work.

The working hours were appallingly long, 9 a.m. to 8 p.m. every day except Saturday when it was 9 p.m closing time, and on Christmas Eve we finished at about 11 30 at night. It was not possible to go to the theatre or even the cinema and see the whole programme. If I did make arrangements to leave early somebody always brought in an urgently required prescription for Mist Cretae Aromat.c Opio

Three afternoons a week I went to the Birmingham Central Technical College to study chemistry, physics and botany for the Preliminary Scientific examination as the Society's Intermediate was then called; Sunday was taken up by homework.

The duty on alcohol and the complications for its recovery discouraged most pharmacists from making their own galenicals which were now bought from wholesalers who also often made time-consuming prescriptions I was fortunate in having a good apprentice-master who taught me to make everything, including pills, lozenges, special powders and even unusual galenicals This I carried into practice after I was qualified, sometimes unwisely One Saturday afternoon, I made Ung. Capsicum - easy enough to make, bruise the capsicums with lard and soft paraffin and place on a water-bath for an hour - but my swollen face and thick lips taught me a lesson.



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As the drug run was no longer needed for crude drugs it was used for proprietary articles bearing tax stamps. Phosphorine, Tiz for Tired Feet, Bile Beans, Beecham's Pills and Aspro are among those I remember.

As "my" pharmacy had been open only eighteen months and had a staff of two, I did everything, washed, dusted, packed, unpacked, delivered and even posted leaflets. One of my most important duties was to post the order to the wholesaler - the last collection in those days being 8.45 p.m.- for delivery at 10.30 a.m. next day. Only once did I forget it and it is best to draw a veil over the results.

Until I was 12, I had lived in Belfast in a terrace where some of the houses had been converted into shops, including a pharmacy. The apprentice spoilt me and let me run in and out of the large dispensary which was a busy one. In Belfast all dispensing was done in a pharmacy, and doctors did not employ girls to do their dispensing. I was surprised to find this was not the case in England, and very few of the girls had even an Apothecaries' Hall certificate; most of them I suspect just diluted concentrated mixtures prepared by Messrs Philip Harris

When Lloyd George introduced National Health Insurance he made sure that dispensing was done by or supervised by pharmacists. Only the working population was covered by the NHI, leaving most married women (few worked then, women teachers had to resign on marriage) and children uncovered by insurance. As most of our dispensing was NHI, I used the predecessor of the *British National Formulary* far more than the B.P. or B.P.C. Payment was not generous. The Insurance paid the cost of the ingredients to two decimal places of a 1d. and a dispensing fee of 3d. or 5d , the patient supplying the bottle or else paying 2d. Test prescriptions could be brought in but I always spotted them. Private dispensing paid rather better.

Most people, as I think is still the case, consulted a pharmacist before a doctor. The uninsured relied almost entirely on the pharmacist, and for this reason I believe community pharmacy was, and I am sure still is, the best place to learn pharmacology as the pharmacist sees most patients regularly and learns how effective a medicine has been. In those days few medicinal substances cured, most alleviated symptoms and Nature cured. Tuberculosis was rife but there was neither chemotherapy nor antibiotics to combat it. Pneumonia was usually fatal. On one occasion I remember we received a message that a customer, a big built navvy, was ill with pneumonia and an oxygen cylinder was urgently required I lugged it all the way up the hill to be met on the doorstep with the news the patient had just died.

In my second year there was an influenza epidemic for which we prescribed Mist. Phenazone Co., (Phenazone, Pot.Brom., Liq. Ammon.Aromat. and Saech Ust.) and bed. We worked all hours and the dispensed medicine counter was completely covered with bottles. Then the Boss caught it and for the first time I had to run a pharmacy on my own supervised from afar - and I learnt a great deal!

Our long days were enlivened by many funny or odd occurrences. There was the maid who came in regularly for a pint of diluted water, and another who bought "Keep Off" for the hospital Matron, which was thought to be for her bitch and not for personal use. Then there was the doctor who had two standard prescriptions: either three grains or four grains of Ammon. Carb. in half an ounce of Aq. Chlorof., and the Apothecary Hall person in charge of the hospital dispensary who learnt to respect aether the hard way. I have memories too of our errand boy who broke a five gallon can of treacle, and the occasion when the Boss did the same to a winchester of Strong Ammonia.

## Change to B.Pharm.

My apprentice master suggested that as I was so interested in the science of pharmacy I should change to the B.Pharm. course, of which I had never heard. I did not think much about it until my best friend, also an apprentice, suggested that we should both do this, and later on teach. This appealed to me so I sought advice and made the change. Now I had to take a full-time four subject (chemistry, physics, botany and zoology) Inter-B.Pharm course, followed by a further two years full-time study. After the first year of the second part, I took the Chemist & Druggist qualifying examination of the Pharmaceutical Society, and so was now a pharmacist. The second year was shared with those students who were taking the Society's Pharmaceutical Chemists qualifying examination. The subjects were more or less the same as those of the university but the latter were taken to a higher standard and the exams. particularly the practicals, were longer.

Studies over, I worked for six months in several community and hospital pharmacies, became a part-time demonstrator in chemistry and bio-chemistry, and finally was appointed lecturer in physiology and pharmacognosy at Birmingham Central Technical College.

## Pharmaceutical Education in general and the B.Pharm. in particular.

It was not until the early 1930s that the firms who had established laboratories to look for new therapeutic agents began to produce results. Up to the first half of the Thirties, pharmaceutical education was largely based on crude drugs, so that botany was important as a basis for pharmacognosy, and formed an important part of the syllabus. It soon became clear however that with the development of the new synthetic drugs their actions were becoming better understood, and if pharmacists were to continue to be able to give nurses and doctors the information they required, then the actions and uses of drugs must be brought into the syllabus. Fortunately, the Society had through their School of Pharmacy the assistance of Dr Gaddum (later a professor at Edinburgh) and Dr H.Burn (later professor at Oxford) in introducing pharmacology, under the guise of physiology, into its syllabus. The first year course was mostly theoretical supported by a little work in the bio-chemical laboratory, but the second year included a practical exam. up to second M B. physiology standard with the emphasis on drug action. Botany was dropped from the final courses in order to make way for this



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### Parenteral Injections.

The growth of these was another important development. Previously, doctors had dissolved a hypodermic tablet in boiled water in a teaspoon, which was probably good enough if the solution was to be injected immediately, but when made in a pharmacy and so kept before use, then it had to be sterile. The need for applied microbiology was foreseen by two remarkable pharmacists, Harold Davis and Harry Berry, each of whom had had their own private schools for coaching. When the compulsory exam. was introduced, Berry went to the Chemistry Department in the Birmingham Technical College (now Aston University), while Davis went to University College Hospital as Chief Pharmacist.

Berry was not only an outstanding teacher but an excellent organiser, and despite opposition soon had Pharmacy separated from Chemistry within the Department of Pharmacy. In 1934 he was appointed teacher of Pharmaceutics at the 'Square' I am not sure if he became Head of School at the same time, but it was as its Head that he persuaded the University of London to take over the School of Pharmacy and its new headquarters at Brunswick Square which the Society started building before the War

It is thanks to the foresight of Berry and Davis that when penicillin was released for general use (which then could only be administered parenterally) pharmacists were able to handle it, although they had to fight off the microbiologists who wanted to keep it to themselves

Berry was replaced in Birmingham by Dr F G Bryant, the only Doctor of Pharmacy I have ever met. He had two immediate problems. The first one was the introduction of physiology into a college without a department of physiology, which he solved by sending Mr E.S.Moore, an excellent biology teacher to the university to follow the second M.B physiology course The professor there gave him a Certificate of Competence to teach the subject which satisfied the Pharmaceutical Society, and he introduced one of the best physiology/pharmacology courses for pharmacists in the country

The second problem, the introduction of microbiology and aseptic dispensing, presented a much bigger problem, one which was not finally solved until some time after Dr Bryant had forsaken the College for the editorship of the *Chemist and Druggist*

Dr Bryant was followed by a young man of genius, Ron Withell, one-time demonstrator at the Square, who brought pharmaceutical microbiology and much drive with him. Berry as head of the Square did not recommend him, saying he would "not grow up", but the Principal, David Anderson (later Sir David and Rector of Strathclyde) recognised genius when he saw it and appointed him Withell certainly succeeded in getting Birmingham on the right lines but unfortunately he died in an accident probably caused by his willingness to take risks

This deprived, Birmingham in particular and science in general, of one of its most promising young men I say science rather than pharmacy because I believe he would have left pharmacy to become one of the leading bacteriologists in the country or even the world.

On that high and low note, I have strayed into the early 1940s, and so will finish.

# A BRADORD-ON-AVON PHARMACY: PRESCRIPTION BOOKS, 1863-1918.

**I.M.SLOCOMBE.**

This Bradford-on-Avon pharmacy was opened in 1863 by Thomas Saunders and continued until 1986 on the retirement of its then owner, Miss Angela Christopher. Fortunately the whole contents of the pharmacy were preserved and the shop has been re-created as the centre-piece of the Bradford-on-Avon Museum. The material included a complete set of prescription books from 1863.

Bradford-on-Avon is a small west Wiltshire town whose prosperity historically had depended on the woollen trade. By the second half of the nineteenth century this was in sharp decline and had been replaced, at least in part, by the emerging rubber industry. In 1901 the population was 4,514.

When Thomas Saunders opened his pharmacy, there were already two other chemists & druggists in the town, George Marks at Bridge Foot and Thomas and Emmanuelle Taylor in Silver Street. The Taylors were also wine and spirit merchants, and by 1879 had given up the pharmaceutical side of their business. For the rest of the period covered by this article the two remaining pharmacies continued, although with various different owners.

The Saunders pharmacy had four owners:

| | |
|---|---|
| 1863-1881 | Thomas Prideaux Saunders |
| 1881-1891 | Albert Cooper (previously assistant to Saunders) |
| 1891-1908 | William Norris |
| 1908-1962 | Richard Christopher. |

The prescription books have been used as evidence for the nature and volume of the pharmacy's busines, its fluctuations and its customers

The first book is a slim volume measuring 12½ inches by 4 inches, the prescription numbers running from 100 to 711. The first entry is dated 10 August 1863, but after that very few dates are given The index at the front is incomplete and contains only fifteen names

The other six books are more substantial, they are leather bound measuring 15 inches by 6½ inches. The pages are numbered in each book, while the prescriptions are also numbered consecutively, running on from one book to the next. Dating of entries is not consistent. At some stages the entries are given for each week (often in Latin) and at other times only the years are noted; the period 1896 to 1908 particularly lacks detailed dates The front of each book has an alphabetical index of customers referring to the pages on which their prescriptions are recorded

The period 1863 to 1918 is included in these seven books.

| Period | Number allocated. |
|---|---|
| August 1863 - June 1865 | 100 - 711. |
| July 1865 - March 1878 | 712 - 3206. |
| March 1878 - October 1898 | 3207 - 6086 |
| October 1898 - June 1910 | 6087 - 7242. |
| June 1910 - October 1913 | 7243 - 10284. |
| October 1913 - November 1916 | 10285 - 15902. |
| November 1916 - January 1919 | 15903 - 21504. |



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There are some mistakes in the numbering, for example, it jumps from 4099 to 4500, but even so, there are some 21,000 entries in the 56 years.

We can glean from the prescription books a good indication of the amount of business done by the pharmacy, although the interpretation is not entirely straightforward:

(Where precise dates are not recorded, a yearly average is given.)

**Saunders Period.**

| | | | |
|---|---|---|---|
| 1863-65 | 293 (av.) | 1865-78 | 205 (av.) |
| 1879 | 140 | 1880 | 143 |
| 1881 | 129 | | |

**Cooper Period.**

| | | | |
|---|---|---|---|
| 1882 | 173 | 1883 | 135 |
| 1884 | 132 | 1885 | 130 |
| 1886 | 175 | 1887 | 153 |
| 1888 | 162 | 1889 | 131 |

**Norris Period.**

| | | | |
|---|---|---|---|
| 1891-93 | 74 (av.) | 1894 | 138 |
| 1895 | 52 | 1896-98 | 52 (av.) |
| 1899 | 86 | 1900-08 | 73 (av.) |
| 1909 | 130 | | |

**Christopher Period.**

| | | | |
|---|---|---|---|
| 1910 | 529 | 1911 | 501 |
| 1912 | 779 | 1913 | 1555 |
| 1914 | 1618 | 1915 | 1827 |
| 1916 | 2209 | 1917 | 1953 |
| 1918 | 3333. | | |

A note at the front of the 1913-16 book records a comparison between 1915 and 1918.

| **Dispensing** | **1915** | **1918** |
|---|---|---|
| Private prescriptions | 1819 | 3334 |
| Insurance | 3019 | 2433 |
| Dr. Fleming | 3240 | 1422 |
| Guardians | 198 | 104 |
| Red Cross | --- | 172 |
| Soldiers etc. | 567 | 640 |
| | 8843 | 8105 |

It is clear that the books record only the private prescriptions as the figure for 1915 derived from the consecutively numbered prescriptions is 1,827 and the figure used for comparitive purposes is 1,819, a very slight discrepancy. In 1915 these formed only 21% of the total number of prescriptions, but in 1918 were 41%. There are no similar comparitive figures for earlier than 1915.

Until at least 1910 the number of prescriptions was low, presumably because only the wealthier could afford to pay for doctors' fees and prescriptions. Others must have relied on the counter prescribing of the pharmacist, home recipes, 'patent' medicines, and the Friendly Societies. One can only guess that the particularly bad period of 1891 to 1908 reflects the management of the then owner, William Norris. When Richard Christopher bought the pharmacy from Norris's widow in 1908 business picked up rapidly and was soon flourishing.

Most noticeable is the doubling of the number of recorded prescriptions in 1913 with a further increase of 50% in 1918. There does not seem to be an obvious explanation. The National Insurance Act of 1911 became operative in 1913 and at first sight this seems to be the explanation, but the note comparing 1915 with 1918 indicates that these prescriptions were separately recorded. If anything, one would have thought that the number of private prescriptions would have diminished not increased, nor did the other pharmacy in the town temporarily or permanently go out of business. It is noted that all repeat prescriptions were recorded and counted in the 1916 - 18 volume but not in earlier books, yet this alone would not have been sufficient to explain the large increase. The 1918 increase in numbers was almost certainly due to the influenza epidemic of that year.

It is interesting also to look at the number of customers with private prescriptions and the frequency with which they presented them.

| | No. of customers recorded | No. of customers with only 1 entry | Av.No.of 'scripts. per customer. |
|---|---|---|---|
| 1863-65 | - | - | - |
| 1865-78 | 812 | 435 | 3.1 |
| 1878-98 | 793 | 443 | 3.6 |
| 1898-1910 | 474 | 276 | 2.4 |
| 1910-13 | 477 | 231 | 6.4 |
| 1913-16 | 461 | 217 | 12.2 |
| 1916-18 | 837 | 418 | 6.7 |

It is noticeable that throughout this period about half the customers have only the one entry. This may be distorted by overlap between the books but even so is a high proportion. These figures also show that the marked increase in dispensing after 1910 came from both an increase in customers and number of prescriptions per customer.

From about 1900 most of the prescriptions are followed by a name or, more often, a set of initials. These indicate the prescriber's name. The most frequent is C.E.S.F. - Charles Edward Stewart Fleming of Manvers House. The Bradford-on-Avon Poor Law union covered Bradford, the Union workhouse and seven neighbouring parishes. Fleming was Medical Officer for No.1 District which included part of Bradford-on-Avon, the workhouse, and the parishes of Wingfield, Westwood and Freshford.

Over fifty other names or sets of initials occur. Some can be identified, such as R.S.Ferguson of Calne, J.P.H.B. probably John Peter Hamilton Boileau of Trowbridge, Dr Bowler of Bath and W.A.H., probably Walter A.Higgs of Castle Combe. The place of origin of the following has not been determined, J.Latham Thompson, H.P.Symons, W.M.Beaumont, G.Buckerton Browne, James Startin, F.G.Lloyd, W.A.H.Jessop, T.J.Head (a dentist), F.Gillett Cory, (who on one occasion prescribed for himself), H.B.Vantander, William Armstrong and E.O.Fountain. Between 1910 and 1913 Lord Fitzmaurice had 55 prescriptions dispensed, forty were initialled by C.E.S.F., twelve by H.P.Symons, one by E.Ayward, one by E.N., and one by J.B.



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This seems to show that the customers of the Bradford pharmacy consulted doctors from a wide area. This is understandable as most of the notable families appearing in the books had residences elsewhere, as well as having frequent visitors. Right from the earliest stage, the pharmacy seems to have had a wide clientele including many of the wealthiest local families.

The Moulton family who owned the rubber works appear frequently. The pharmacy also provided from about 1900 to at least 1943 a special mixture (essentially dilute sulphuric acid, Epsom salts, chloroform, rum and sugar) as a daily dose for lead workers at the factory. Another important Bradford inhabitant was Lord Edmond Fitzmaurice who at various times was a local Member of Parliament, Under-Secretary of State for Foreign Affairs, and chairman of the Wiltshire County Council. His first entry appears in 1900 and from then until 1918 he has 129 prescriptions plus a large number of repeats. Others included Admiral and Lady Poore of Winsley Manor, Lady Hobhouse, Lady Ord, Lady Carcio, General Field, Captain the Hon.B.Russell of Holt Manor, Lady Nepean, Sir Charles Prevost and H.Shrapnell of Midway Manor.

The prescriptions included those for animals and recipes for household use. In 1898-1910 for example there were prescriptions for dogs, ("the dog pills", "dog distemper mixture"), for poultry ("fowl mixture" which contained liquorice, aniseed, ginger and gentian) and for horses ("for gripes"). The household recipes included "plate powder", "French polish", "brass polish" and "blacking".

The earliest book has a note at the end to remind the staff of their pricing mnemonic:

1 2 3 4 5 6 7 8 9 10 11
I F Y O U C A N G E T

The two volumes covering the World War I contain a variety of cuttings from newspapers and journals on war regulations and information affecting pharmacy. Germany had gained a supremacy in the field of drugs and fine chemicals which was protected by patenting the manufacturing processes. The papers found in the prescription books illustrate the difficulties for the practising pharmacist which arose from the loss of supplies from Germany and elsewhere.

A letter, dated 9 October 1917, from Randall & Son Ltd, written on instructions from the Ministry of Munitions says: "Neither Methylated Spirit or Finish is now to be used or sold for burning or similar household purposes nor for toilet requisites, perfumery, washes and the like."

A leaflet, (origin unknown) comments on the reasons for the enormous increase in the cost of cotton, and so of dressings etc. "A 12 inch gun disposes of half a bale of cotton every shot fired. A machine gun in operation will use up a bale of cotton in three minutes. In a naval battle, from 5 to 6,000 lbs. a minute are consumed by each active warship. It takes more than 20,000 bales a year to provide absorbent cotton to staunch and bind the wounds of the injured." (1 bale=400 lbs.)

Leaflet from British Drug Houses Ltd., January 1915, gave a "List of well authenticated British Products which may be prescribed in place of German Proprietaries."

| German proprietary | British equivalent. |
|---|---|
| Anusol | Sanusin |
| Aristol | Thymol iodium |
| Aspirin | Acidum acetylsalicylicum. |
| Benzosol | Guaiacol benzoas |
| Dermatol | Bismuthi subgallas |
| Iodipin | Iodatol |
| Medinal | Sodium maleourea |
| Protargol | Argenti proteinatum |
| Pyramidon | Amidopyrin |
| Tannigen | Acetannin |
| Veronal | Barbitonum P.B. |
| Xeroform | Bismuthi tribromphenol. |

From *Pharmaceutical Journal and Pharmacist*. 4 January 1919.

| | Immediately pre-War. | 1 Jan 1915 | 1 Jan 1916 | 1 Jan 1917 | 1 Jan 1918 | 1 Jan 1919 |
|---|---|---|---|---|---|---|
| Aspirin | 2s./lb. | 6s.6d. | 48s. | 20s. | 13s.9d. | 17s. |
| Atropine | 23s.6d./oz. | 80s. | 130s. | 140s | 120s. | 95s. |
| Barbitone | 20s./lb. | 30s. | 52s | 95s. | 120s. | 85s. |
| Boric Acid | 30s./cwt | 32s. | 45s. | 57s. | 64s. | 84s. |
| Carbolic Ac | 5d./lb | 1s.3d. | 1s.10d | 1s.8d. | 1s.8d. | 1s.10d. |
| Cod Lvr. Oil | 75s./brl. | 100s. | 350s. | 450s. | 450s. | 520s. |
| Crem Tart. | 92s./cwt | 145s | 190s. | 182s.6d. | 355s. | 395s. |
| Phenazone | 6s.6d./lb. | 9s.6d. | 75s. | 34s. | 55s. | 60s. |
| Pot. chlor. | 4d./lb | 1s. | 1s.6d. | 2s.6d. | 2s.6d. | 2s.4d. |
| Saccharin | 25s./lb. | 25s. | 73s. | 250s. | 350s. | 250s. |
| Turpentine | 34s./cwt. | 34s. | 46s.9d. | 54s.6d. | 126s. | 105s. |
| Sod. Brom. | 1s.10d./lb. | 3s. | 18s. | 5s. | 3s. | 5s. |

The huge increase in the price of some drugs arose from both the difficulties of importation and the increased demand from the armed forces.

Aspirin: It was made by the patentee from 1899,import ceased in 1914; was marketed by Howards of Ilford from 1916.

Atropine: Used in pre-medication before general anaesthesia so required in all Field Hospitals.etc.

Boric Acid Obtained from Borax imported from Chile and California; Boric Lint probably used in Field First Aid Posts.

Cod Liver Oil: Fishing boats at risk from U-Boats and mines,and many fishermen were drafted into the Navy.

Cream of Tartar: A by-product of the fermentation of wine imported from France, Germany etc.

Phenazone: A German proprietary.

Potassium chlorate: Required in munitions.

Turpentine: Mainly obtained from France, needed for camouflage and paints.

Sodium bromide: Bromine and its salts had been mostly imported from Germany

The prescription books of the Bradford-on-Avon pharmacy are important for their detailed coverage over such a long period. Their examination sheds new light on the running of a pharmacy in the second half of the nineteenth century and the difficult years of the Great War.



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# COMMERCIAL DRUG CULTIVATION IN ENGLAND.

**Dr J.Burnby.**

John Harvey has shown that monastic houses sold fruit, vegetables, grafts and seeds and that some of them were the chief source of supply for these commodities. He suggests that lay gardeners leased monastic lands and even precincts as market gardens and nurseries.[1] At first monastic gardens were not large nor was a large staff employed but by about 1350 both size and numbers increased. Webber believes that market gardening in Worcestershire owed its early start to the monks of the abbey at Evesham. Henbane (*Hyoscyamus nigra*) and Deadly Nightshade (*Atropa belladonna),* neither commonly found in England today, are often associated with monastic ruins, as at Buildwas Abbey in Shropshire

The earliest known English treatise on gardening is a copy of "The Feate of Gardening" by Mayster Ion Gardener, made in about 1440 but written some 40 years earlier.[2] In it are 97 named plants of which around 70 are natives and 26 are introductions, including the saffron As has been recently shown in the *Historian*, saffron was once grown in large quantities, chiefly in the eastern counties around Walsingham in Norfolk and Saffron Walden in Essex It has been claimed to be a source of vitamin A and so would have been useful with the restricted diets of mediaeval times

Tottenham, north London, is today not an area which immediately brings market gardening to mind, but was once well known for this occupation. Even more surprisingly the Dorset survey of 1619 shows that there were nine closes or gardens of roses, most of them so named on the accompanying map. Usually the size is not given and as a rule they are small, but one to the south of Marsh Lane was 1½ acres, and a six acre plot called Hencroft is marked, "now converted into a garden of roses". A rough estimate gives some ten acres devoted to rose cultivation.

Albertus Magnus in the thirteenth century listed four kinds of rose, *Rosa canina* or Dog Rose, *Rosa arvensis, Rosa centifolia* and *Rosa rubiginosa*, and by the fourteenth century the districts around Rouen and Paris were renowned for their rose gardens Probably it was the Crusaders who brought back the knowledge of the use of roses in Arab medicine and it has been suggested that rose-growing was spread throughout Europe by the many thousands of Benedictine monasteries [3] It has been shown that one in three formulae contained roses in some form It was *Rosa gallica* that became the official rose of the *British Pharmacopoeia*, they once forming the basis of syrup of roses, confection of roses, the rose base of troches and liquor rosae acid, all found on pharmacy's shelves early in this century.[4]

Lysons tells us that rose trees were cultivated in Ashover, Derbyshire in the early nineteenth century, the leaves [petals] of the flowers being sold to the London druggists for 5s. to 7s. per pound. At Mitcham, from where London druggists were also long supplied, there were until the 1860s some ten acres planted with *Rosa gallica*, although a supply was also obtained from the market gardens of Putney, Hammersmith and Fulham, but by then the rose fields of Tottenham had long disappeared.

Market gardening, of which drug cultivation may be regarded as one specialised form, originated in a number of locations having certain necessary characteristics. These areas were either near the larger towns and cities such as London or York, or where there was land tenure which favoured it, as occurred in the Vale of Evesham.[5]

In these days when tobacco smokers are positively hounded for their habit, it is forgotten that in the seventeenth century it was regarded as medicinal. Tobacco was kept in large quantities by the apothecaries as the inventories show, and was grown here in England in not inconsiderable quantities.

Dr Joan Thirsk, the agricultural historian, has shown that a very few acres of this crop could bring great profit. Growers were prepared to pay a rent of up to £8 per acre when the more usual sum was £2, because in a good season, tobacco might fetch 10s. to 18s a lb. and even in a bad one 2s. or 4s.; furthermore as many as 10,000 tobacco plants could be grown on an acre.[6] It was generally believed that newly-broken grass land gave the best results. The crop was labour intensive, but the cottagers frequently had large families which could be put to work with advantage, at the expense of say half an acre of meadow taken out of more usual husbandry

Until at least half way through the eighteenth century there was in Charlton Kings outside Cheltenham a "close of meadow or pasture called Tobacco Close". The earliest date for the crop in Gloucestershire is 1619 when it was introduced at Winchcombe and Bishop's Cleeve.[7] In spite of the advantages for the poor crofter, the cultivation of tobacco did not last long. Our climate is not really suitable, drying the leaf was particularly a problem, and anyway the Virginian leaf, which was becoming cheaper, was preferred. A new prohibitive Act was passed in 1660, and although at first it was difficult to enforce (mainly it is said because the local J.P.s were not interested in doing so) its cultivation became a thing of the past - until a revival in the last war

Elecampane, *Inula helenium*, was once used as both a condiment and a medicine, and when candied as a sweetmeat. It was cultivated to a limited extent in England. Lysons in his history of Derbyshire (1817) relates that it was cultivated in Ashover and North Wingfield, but mostly it was imported from the Leipzig area of Germany and from Holland. Flückiger and Hanbury describe it as being an aromatic tonic, but its popularity was due to it being supposed to be an aphrodisiac

Mustard seeds (*Sinapis nigra* L ) besides being used as a condiment were also thought to have medicinal properties and it was cultivated on a large scale in many countries including England Its cultivation here, although not then extensive, dates back to the thirteenth and fourteenth centuries, later it was chiefly grown in the alluvial soils of Lincolnshire and Yorkshire. Medicinally it was best known as the much advertised Whitehead's Essence of Mustard which could be obtained in both liquid and pill form It was said to be a cure for rheumatism, gout, lumbago, palsy, complaints of the



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stomach, numbness and many another human ill. It cost 2s.9d. a box or bottle and the *Derby Mercury* of 3 January 1799 said it was obtainable from Mr R.Johnson, apothecary, at No.20, Greek Street, Soho, as well as being sold in the capitals of Europe and in America. Not all mustard makers were as successful as the same newspaper shows. Abraham Brandon of Castle Street, Middlesex, in 1793 had to present himself to the Guildhall as a bankrupt, as did Richard Booth of Thwongsbridge, Yorkshire two years later, and James Richard of Walworth Common, Surrey, in 1799.

Rosemary Weinstein writes that Bloomsbury Manor, formerly the property of the London Charterhouse, was granted by Henry VIII to Thomas Wriothesley in 1545, and that the area covering the present Bury and Coptic Streets became known as the Liquorice Garden.[8] The root of *Glycyrrhiza glabra*, a plant indigenous to Mediterranean Europe, has been known since the days of Theophrastus but does not seem to have been cultivated in England before the end of the sixteenth century.

Flückiger and Hanbury wrote that "the plant is cultivated at Mitcham and in Yorkshire but not on an extensive scale. The plants which require a good deep,well manured soil, are set in rows and attain a height of 4 to 5 feet which produce flowers but no seeds." The root, which can grow to four feet and more in length, is dug up at the beginning of the winter when three or four years old; every portion of the subterranean part is carefully saved.

The principal industry of Pontefract in the nineteenth century was the manufacture of Pontefract cakes. The 1822 *Leeds Directory* said the soil was well suited to the liquorice plant and that there were five liquorice boilers and dealers either in Ropergate or Micklegate. The manufacture of the cakes was purely a winter trade as they were made from the dressings of the rhizome taken up in September, the greater part of the decorticated sticks being sold to chemist & druggist's sundriesmen.

The last of the liquorice growers, Edward Booth, ceased work in the 1960s. The last boom had occurred immediately after World War II when the root commanded £24 a hundredweight but, as Booth lamented, it would now fetch less than half that sum as it was cheaper to import it from Turkey and elsewhere. Booth sold most of his roots to chemists & druggists who took those of good size. In 1900 there were fifteen manufacturers of Pontefract cakes in the town but in the 1960s the old established Ewbanks had already closed, the eighth to do so since the war, and there were only two factories left.

The cakes were probably first made in about 1760 when a local chemist and druggist called George Dunhill added sugar to the medicinal cake which was said to be both tonic and a thirst quencher.

Most people find liquorice has a pleasant flavour and odour but this is scarcely the case with Valerian (*Valeriana officinalis)* although Turner's *Herbal* tells us that in the sixteenth century the roots were laid among clothes as a perfume. The plant grows readily and luxuriantly in Derbyshire to this day and was cultivated in the nineteenth century in many villages near Chesterfield, e.g. Ashover, Higham, Morton, Pilsley and Shirland. It was still grown at Stretton in around 1927 and at Brackenfield until 1941.

The *Pharmaceutical Journal* in 1945 related that both varieties, *sambucifolia* and *Mikanii* were widespread in the county and that the young wild plants or "sets" were collected in the woods near Winster, Darley and Hassop in Spring just as the shoots were coming up. They were then planted in the Amber valley four or five inches apart in rows eighteen inches from each other.[9] The flowering stems were cut off from time to time to give a better rhizome, then in October were lifted. These were then cut up, (something very interesting to the farmhouse cats), adherent soil removed and washed in large wooden boxes placed in the local streams. They were then dried on a lath floor over a large gritstone stove which took about a week. The shrinkage was considerable, a cart-load being reduced to about only a hundredweight. The crop was then sold to manufacturing chemists in Chesterfield, Nottingham and Leicester. The *Journal* hoped that production would be resumed after the war but as far as I know it was not.

None of these drugs were, over all, of great importance, but the two which did excite considerable interest were medicinal rhubarb and the opium poppy.

Writing in 1874 Flückiger and Hanbury said that *Papaver somniferum* for medicinal use was grown in many parts of England but mostly on a small scale. The large poppy heads were usually sold entire whilst the smaller ones were broken, the seeds extracted, and then sold to the druggists for pharmaceutical preparations. The real importance of the plant however lay in the opium derived from the exuded latex.

The Royal Society for the Encouragement of Arts, Manufacture and Commerce, (RSA) had an excellent policy of encouraging experimentation by awarding gold medals and monetary premiums, and at the end of the eighteenth century began to take an interest in opium. John Ball, a surgeon & apothecary in Williton, Somerset,who had already won three awards for growing rhubarb, in 1796 forwarded a small pot of opium produced from poppies in his own garden, and boldly mentioned that he expected a pecuniary award. The Society was willing to come to terms and offered him fifty guineas in return for a detailed account of how he had obtained the drug.[10]

The RSA then offered a similar sum or a gold medal for the production of opium on a substantial scale, at least 20 lbs being required. Four years later (1800) Thomas Jones, a wholesale chemist & druggist on Fish Street Hill, London, was able to claim this £50 premium for opium obtained from poppies grown in Enfield. He wrote that he first grew a quantity of white poppies in the summer of 1794 but that his time had been very limited owing to rhubarb growing. In March 1798 however he had sown five acres with the opium poppy and had procured 21 lbs. of opium. He had found that rain and wind were bad for growth and that the poppies particularly liked a loamy soil.

He had invented a number of scarificators but in the end only used two of them, and had decided it did not matter whether the capsule was incised vertically or horizontally. The opium had been collected between 6th. July and the second



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week of September. He had employed seven or eight boys aged between eight and twelve with a man superintendent. The youngest children received three pence a day, and if "tractable and well disposed" an extra penny for each year of their age. He had tried to excite a spirit of emulation amongst the boys, even writing the name of each boy on his cup, but had been only partially successful.

The Opium Poppy

Thomas Jones also discovered that the early morning was the most valuable time for collecting the latex, and those who came by 5 a.m. received an extra penny. At first, even with this inducement, few came but then others were shamed into it.

To reduce the exudate to the correct consistency it was spread thinly on shallow dishes and exposed under glass to the sun, the heat of a fire being too fierce and causing great deterioration.[11] His opium was pronounced as good as that from Turkey. George Pearson, the physician at St George's Hospital had made some trials of it and said the results were as good as those from the best foreign opium and G.E.Lawrence, apothecary at the Middlesex, found it gave the same relief as the imported variety. There seems little doubt that the opium was of good quality - provided the weather was kind but all too frequently it was not propitious.

Nevertheless experimentation continued. In 1821 John Cowley, general practitioner in Winslow, Buckinghamshire, obtained a yield of 60 lbs. of opium from his white poppies. The RSA by now had increased its demands. In order to obtain a gold medal a person had to prepare not less than 250 lbs, and a gold Ceres medal or thirty guineas for not less than 120 lbs. Certificates of quality and quantity, a full description of the mode of cultivation, extraction and preparation of the opium had to be submitted with the sample to the Society.[12]

However, in spite of all this encouragement, it was apparent that the production of opium in this country was not a viable occupation. Rhubarb was more successful, although attended by repeated disappointment because it failed to breed true. It was soon realised that rhubarb hybridised only too readily.

Andrew Boorde, a Carthusian monk and medical practitioner, obtained in 1535 rhubarb seeds which he sent as a "grett treasure" to Sir Thomas Cromwell saying that they came "owt of Barbary", but their genuineness is doubtful.In about 1608, Prosper Alpinus of Padua cultivated what he thought was the true rhubarb, but which is now known not to be, and is named *Rheum rhaponticum*. From this stock Sir Matthew Lister, a physician, procured seeds when in Italy and gave them to Parkinson who successfully raised plants in his famous garden in Long Acre.

Even though *R.rhaponticum* was suspected not to be the true medicinal rhubarb it was cultivated quite widely. Flückiger and Hanbury relate that about 1777, Hayward, an apothecary of Banbury, Oxfordshire, commenced cultivation with *rhaponticum* seeds sent from Russia in 1762.[13] He received a silver medal from the RSA in 1789 and in 1794 a gold one. In these years other medals were awarded to growers in Somerset, Yorkshire and Middlesex. On the death of Hayward in 1811 his plants came to a Mr P. Usher whose descendants were still cultivating the rhubarb at the time of writing. Indeed on 4 September 1872, the two authors went to inspect the rhubarb fields at Bodicott, near Banbury, and saw the whole process of preparing the root for market. There were about seventeen acres under cultivation, the soil being a rich friable loam.

The roots were ideally six or seven years when taken up in the autumn, and when removed from the field for trimming in the yard were all of sixty or seventy pounds in weight. After partial cleaning the central portion was rapidly trimmed into a short, cylindrical mass the size of a child's head,then further pared and finally sliced longitudinally. The fresh roots were fleshy, easily cut and of a beautiful deep yellow which were dried in a specially constructed building heated by flues.

The drying took several weeks and unfortunately then presented a shrivelled appearance which required further paring and filing. They then added, "When well prepared Banbury rhubarb is of excellent appearance, being semi-cylindrical and quite equal in size and colour to the Chinese drug, but the odour is somewhat different, the taste less bitter but more mucilaginous and astringent. The drug commands but a low price and is chiefly sold for export when powdered."

The Royal Society of Arts in 1763 had appointed a committee "to pursue the requisite measures for introducing the culture of true rhubarb" and soon afterwards offered a gold medal. The committee obtained specimens of plants and seeds from several sources but was doubtful if they had obtained the genuine article. Then they succeeded in obtaining an attested source.



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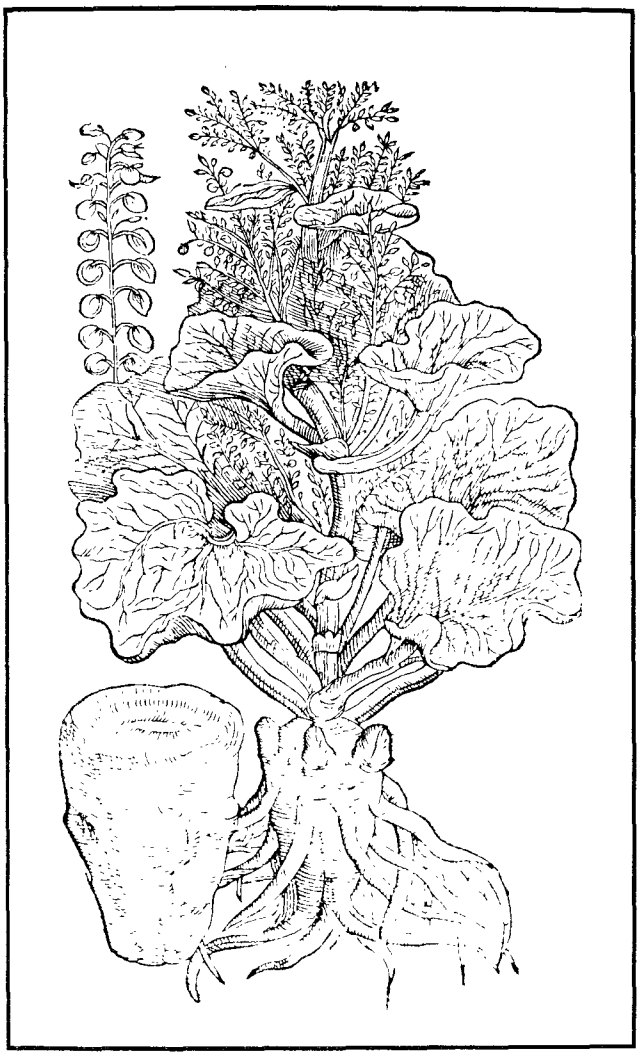

"The True Rhubarb" from Parkinson's *Theatrum Botanicum*

Sir Alexander Dick, president of the Edinburgh Royal College of Physicians, made contact through his brother-in-law, the British Resident at the court of the Tsar, with Dr James Mounsey, the Tsar's chief physician and archiator.[14] In 1765, Mounsey wrote that his predecessor in around 1753 had made arrangements to obtain true rhubarb seeds from the borders of China which were planted in "the Apothecary Garden at St Peterburg", but only one plant had come to "perfection"

Mounsey was abruptly dismissed by the Empress Catherine only five days after the murder of her husband Tsar Peter III, on 17 July 1762 On his return to Scotland he brought a box of the rhubarb seeds with him, some of which he gave to Sir Alexander Dick who grew them successfully at his home Prestonfield, and some to John Hope, Professor of Botany.[15] Others were given to influential land owners for experiments, amongst whom was a Mr James Inglish of Hampstead. Inglish in 1769, when some of his plants were more or less mature, sent specimens of the roots to the RSA, and also more seeds for further distribution. For this work Inglish was presented with a gold medal, as was James Mounsey in 1770

Having at last found an attested source, christened *Rheum palmatum,* the RSA began to offer annually a gold medal for raising the greatest number of plants which could not be less than a hundred. The first person to be awarded was Sir Alexander Dick for his initiative.

In February 1783, Thomas Jones the wholesale druggist of Fish Street Hill sent in a certificate to the RSA signed by Reverend William Shaw of Forty Hill, Enfield, which certified that "Joel Rowsell of Enfield, gardener, has planted for Mr Thomas Jones, 420 plants of *Rheum palmatum* or true rhubarb at 6 foot distance from each other, in a piece of ground rented of me..." In the accompanying letter Jones wrote that for several years he had believed that true Rhubarb could be grown in this country, an idea which was confirmed when given a root which had been grown in an Enfield garden. (Local tradition says that it was John Sherwen's, a surgeon & apothecary in the town.) This root, probably due to excess moisture, was much decayed but nevertheless, like the curate's egg was excellent in parts, and as Jones puts it, he determined to become a planter

From his experiments, he concluded, "that the time for sowing was March or April, or August and September" and then the spring plants were transplanted in autumn and the autumn ones in spring. The plants could not have too much room and the soil should be light, loamy and rich. Their situation could scarcely be too dry, and lastly, any "injuries ... occur principally during infancy and are to be imputed to insects and inattention in the planting season; afterwards from too great an exposure to frost but none can be dreaded from heat."

Jones gained another gold medal in 1797 for having grown 935 plants at four foot distances, and the following year added 3,040 plants, making five thousand in all This time he accepted thirty guineas from the RSA having quite sufficient gold medals. By 1800 Jones had planted over four thousand more plants and true rhubarb of English growth was being used at the hospitals of Guy's, St Thomas's and St. Bartholomew's as well as being on trial in several others.[16] Sir William Fordyce, a prominent member of the RSA, pronounced that, at that time, the rhubarb market was worth £200,000.

Drug cultivation however was never to figure largely in the English economy. Many of us in our student days will remember delightful trips to view the fields of Stafford Allen's at Long Melford where plants of Belladonna, Aconite, Digitalis and Hyoscymus could all be seen, but to be honest we were inspecting a scene which would soon be a thing of the past Whether the recent interest in "green pharmacy" will bring about a reversal in drug cultivation remains to be seen

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# WILLIAM KENNEY OF MORTON, LINCOLNSHIRE.

Report by L.G.Matthews on an account book and a poisons book submitted by the librarian of Stamford, Lincolnshire, 11th February 1964.

## 1. The Poisons Register.

This is probably unique in that it is a first Poisons Register, an ordinary exercise book, ruled and headed by hand, dating from 16 January 1869, the Poisons and Pharmacy Act of 1868 having come into force on 1 January 1869. It contains a press cutting relating to the Act and printed and manuscript lists of the scheduled poisons.

Mr Kenney, the pharmacist, carefully observed the requirements: the entries record the purpose for which the poisons were required, the signatures which had been obtained etc. Amongst the earlier entries are "Battles" for mice, and miscellaneous quantities of arsenic for dressing wheat. Laudanum as "anodyne" appears occasionally. Each autumn there are large sales of arsenic to farmers for wheat dressing, occasionally for barley, as much as 56 lbs being sold at one time, a total of 800 lbs from October to the end of December 1869. Similar large sales are noted in each year, the same farmers' names re-occurring over many years.

Entries include oxalic acid for "linen" or "cleaning brasses", strychnine for "poisoning dogs", cantharides to "dress beast", tinct. cantharides for "wens" (an ounce at a time), and calomel for "dogs" (2 ozs.).

By 1878, twenty years after the Act, the pharmacist was obviously getting older, the handwriting is shaky and the entries less complete. Economy in use is noticed, even the cover is used for the last entry.

## 2. Account Book and Bought Ledger.

This is a valuable book as a record of wholesale prices from different suppliers of drugs, groceries, drapery etc. from October 1840 to 1876, a period of 36 years. The business was obviously that of a chemist & druggist, general dealer, tobacconist and tea-dealer. Although Mr Kenney bought hops in bales from overseas and in pockets from Kent and Sussex from two London suppliers from 1857 to 1869, I am inclined to think they were sales by retail for home brewing, and that he was not a maltster, unless it is known that he had a malthouse.

Kenney's principal suppliers of drugs were:

H.C.Handson, druggist, Stamford, later a chemist & druggist

George Spurr, druggist, Boston.

George Wilson, druggist, Stamford.

J.R.Dulton, druggist, Stamford.

John Harvey, chemist & druggist, Stodman Street, Newark. This apparently became Harvey & Quibell in 1865, and there is a bill-head in 1868 of this firm with the arms of the Pharmaceutical Society which states that the firm was formerly Snow & Harvey.

G. & H. Alliston, druggists, Hull (1870)

Burgoyne & Burbidges, 16, Coleman St., London. The account was begun in 1872.

The method employed by Kenney was to enter in this book all his invoices and usually the accounts were paid when the traveller from the firm called. Stamped receipts were not given but the book itself had the receipt stamps affixed.

The range of drug purchases was wide: ointment was bought by the cask, opium was of three kinds, Persian, Egyptian and another, seal oil came from Hull, and he bought a variety of proprietary medicines and those which were already made-up.

There are details of the long lists of grocery supplies. His suppliers were in Bourne, Boston, Stamford, Nottingham (Tobacco), Norwich, Hull and London. Gunpowder was bought in 24 lb.lots.

This book would repay strict perusal for its prices of drugs during the period it covers, and a good deal of information could be obtained about the wholesalers' stocks, and as indicated above, the firm of Harvey & Quibell of Newark which may no longer be in existence.

William Kenney's name appeared in the Register of Chemists & Druggists as being in business "before 1868". He appeared in the Register for 1882 and may be presumed to have died in 1882 or 1883.



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**CONTENTS.**



## DIARY DATES.

The British Pharmaceutical Conference, Glasgow.

From Tuesday 10 September until Thursday 12 September 1996 inclusive, BSHP is staging an exhibition of historical material in the Architecture Building, University of Strathclyde.

On the Thursday afternoon, two papers of historical interest will be given.

Wednesday, 13 November 1996.

"The Manufacturing and Dispensing Activities of the Society of Apothecaries" by Major Charles O'Leary.

## Citation for the Leslie Matthews Medal.

The President, Mr Anthony Morson, has great pleasure in announcing that the Leslie Matthews Medal had been awarded to Dr Melvin P. Earles, B.Pharm., M.Sc., Ph.D., F.R.Pharm.S. In announcing this, he, with Professor John Pickstone and Mr. W. Jackson wrote, "The Leslie Matthews Medal of the British Society for the History of Pharmacy has been awarded to Melvin P. Earles for his exceptional contribution to the history of pharmacy in Britain over several decades."

"Dr Earles' researches have included work on the early theories of the mode of action of drugs and poisons, pharmaceutical education and the evolution of the Pharmaceutical Society of Great Britain. His work has helped to sustain pharmaceutical history as a specialism."

"He has earned international respect for his exceptional knowledge of pharmaceutical history, and his work in this field is of enduring quality. Dr Earles has been a member of the International Academy for the History of Pharmacy for many years, and has been Honorary Secretary and Vice-President, as well as serving two terms as President of our own Society."

"Through his research, teaching and organisational work he is more than qualified to be a worthy recipient of the Leslie Matthews Medal."

## Members' Activities.

On Wednesday, 12 June 1996, the President, Mr Anthony Morson led a group of BSHP members round the Chelsea Physic Garden. There are two special interest paths, the historical and the medicinal; tea was available and the visit was well attended.

Mr Mervyn Madge has written to congratulate Dr Burnby on her short article, "Studies in Cinchona Bark" which appeared in the *Historian* of March 1996. Mr Madge has a particular interest in "the Bark", and readers will remember that he wrote on Charles Ledger who went to seek his fortune in South America in 1836. In this he was not successful although his travels and persistence finally resulted in the successful Dutch quinine industry. (*Pharm. Hist.* March 1991.)

It was agreed by all that the 1996 BSHP Conference at Shrewsbury was very successful. An unexpected but particularly welcome attender was Dr John Crellin just flown in from Newfoundland. Accompanying him was Saqamaw Michael (Mise'l) Joe of the Micmac Nation, a man of great charisma. BSHP members were invited to a conference on traditional medicine and healing to be held on the Conne River Reserve, Bay D'Espoir, Newfoundland, on 3-5 July 1996 followed by a two day pow-wow. Many were tempted but time was too short.



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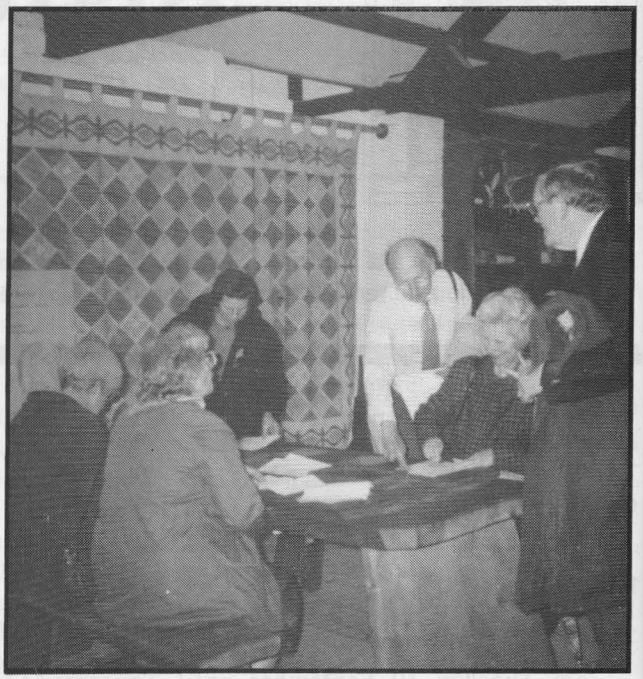
*The contingent from Newfoundland.*

It was of course essential to make a visit to The Shrewsbury Quest and see the "re-constituted" herb garden of Brother Cadfael and his workshop. No herb or plant in the garden has been introduced later than those growing in this country by the twelfth century. The scriptorium engaged many people's efforts, but none was successful in reproducing mediaeval calligraphy, rather were their hands and fingers covered with inks from spluttering quill pens.!

All this activity left little time for trying to solve the mystery of the supposed "Miracles of St. Winifride", even though Brother Cadfael had kindly left notes to assist us in each room. A few managed to cross the road to pay "homage" at the Benedictine Abbey of St. Peter and St. Paul, founded in 1083.





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# TO DIE OR NOT TO DYE.

## Poisoning from arsenical pigments in the 19th. century.

**W.A.Jackson.**

### Introduction.

Throughout the nineteenth century for most people life was much more hazardous than it is today. For the greater part of this period there was no effective legal control over the sale of poisons and druggists' nostrums, as well as copies of patent and proprietary medicines which could be made to widely varying formulae. For example, of two samples of Godfrey's Cordial purchased in Hull in the 1850s, one had an opium content eight times stronger than the other.[1] Poor storage conditions resulted in deterioration both before and after purchase, labelling was often inadequate or absent and sometimes fatalities resulted from the wrong substance being supplied. Many shopkeepers and their assistants who sold medicines and poisons had little or no knowledge of the products they sold. For many who survived the dangers of the home, unpleasant and sometimes potentially lethal conditions awaited them at work, among whom were those involved in the use of arsenic and its compounds.

We know now that contact with or inhalation of the dust of inorganic arsenical compounds irritates the skin and mucous membranes, as well as being possibly carcinogenic, while the inhalation of arseniuretted hydrogen gas (arsine) causes haemoglobinuria, anaemia and haemolytic jaundice. Indeed, it has been known for a long time that working with arsenic is dangerous. In the sixteenth century the miners of Saxony who smelted smaltite ($CoAs_2$) in the hope of obtaining silver, discovered that this produced poisonous arsenical fumes, and Agricola wrote in his *De Re Metallica* (1566) that the workmen handling arsenical cobalt had to wear long gloves to prevent it eating away their hands. Despite this little was done to safeguard those who worked with arsenic some three hundred years later.[2]

### Arsenic in the Workplace.

In 1834 an industrial accident occurred in France. A manufacturer of the blue pigment used to decorate china was boiling a mixture of cobalt, arsenic and nitric acid when an explosion occurred which shattered the matrass and filled the room with fumes.[3] A servant leaped through a window but the master was knocked to the floor and was unable to get up. After the worst of the fumes had dispersed, the servant returned by way of the door and dragged his master outside, but after eight days of intense suffering he died. Nor did the rescuer escape unharmed. His abdomen became swollen and in forty eight hours was said to be "as large as that of a woman at the full period of pregnancy". He was taken to the Hôtel Dieu where he was treated with purgatives and baths which gave him considerable relief. After three days he passed a "quantity of fetid gas from the bowels", deflating his abdomen and making him feel much more comfortable. He was released from hospital without suffering any permanent ill effects.[4]

Another case of poisoning by arsenical fumes occurred in England in 1859, although on this occasion the dye was not directly involved in the manufacturing process. A watchmaker who lived in Bath developed a number of painful ulcers along the inner surfaces of his lips. Thinking the copper content in the gold of two false teeth might be responsible for some galvanic action in the mouth, the doctor suggested their removal. This was done but without success. The patient's lips were swollen and he was salivating profusely, symptoms of mercurial poisoning, but this possibility was discounted as he taken no mercury, a popular medicine at the time, for several years.

There was no improvement until the doctor visited him in his workshop one evening, and noticed an extremely unpleasant smell. When asked the cause, the watchmaker replied that it became noticeable whenever he lit the gas jet by which he worked and seemed to come from the varnish on the shade which was bright green. The doctor took away the shade and found that it gave positive results when tested for arsenic. The lampshade was discarded, all treatment discontinued and in three weeks the patient had made a complete recovery. The shade had only been in use for a few days before the onset of symptoms, and the rapidity with which this occurred must have been due to the watchmaker's mouth and nostrils being within two inches of it while working.[5]

Arsenical pigments were used in the manufacture of a wide range of articles in addition to pottery, and in many cases, the dyes being only loosely incorporated, resulted in a considerable amount of poisonous dust in the workroom air. This was the cause of chronic arsenical poisoning in many workers, common symptoms being coryza, vomiting, conjunctivitis, laryngitis and dermatitis.

Among the dyes used were Scheele's Green (Cupric arsenite, $CuHAsO_3$), Paris Green (Cupric aceto-arsenite, $3Cu(AsO_2)_2.Cu(CH_3COO)_2$ )and Sodium arsenite ($Na_2HAsO_3$). As the poisonous nature of Paris Green came to be recognised, it was sold under a variety of names in the hope that the purchaser would not be aware of its toxicity, and sometimes baryta or gypsum were added to produce a lighter colour. Thus one could buy French, Parrot, Vienna, Mitis, Schweinfurt or emerald green without being aware it was in fact either Paris Green or a dilution of it.[6]

Scheele's Green was employed in making the green leaves and flowers which frequently decorated ladies' bonnets, head-dresses, wreaths and such. The manufacture of these had become very popular in the late 1850s, by which time there were two to three hundred people, mainly



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girls and young women, employed in this way. The poison diffused in the atmosphere was inhaled and all the workers suffered to greater or lesser degree from debility, nervousness, headache, thirst, sickness, loss of appetite, diarrhoea, sore throat and gums, oedema around the eyes, sore and running nose, and sores on the hands, face and neck as well as other parts of the body.

A 27 year old man who cut leaves from sheets of dyed muslin was treated as an out-patient at the Royal Free Hospital, London, in February 1859. He was suffering from thirst, whitening of the tongue, nervousness, disturbed sleep, weakness, loss of appetite, diarrhoea, difficult breathing, tender gums and sores on the hands, forehead, behind the ears, at the roots of the nails and on the scrotum. The symptoms had all developed in the two or three months he had used the muslin sheets dyed with emerald green. Eleven others who worked in the same room were affected in much the same way.[7]

Similar problems were encountered in France. In Nevers in 1861, some young women employed in tearing light green tissue into strips used for ornaments in dress-making, suffered from stomach pains and irritation of the mucous membranes due to the inhalation of the dust produced. The tissue was burnt by order of the police and the shopkeeper who had supplied it returned all his remaining stock to the manufacturer.

Madame Seplat, a maker of artificial flowers in Paris, was less fortunate. She had supplied a young man named Bonnin with a green powder to spread over some flowers, assuring him it did not contain arsenic. Within a fortnight he was suffering from symptoms of arsenical poisoning, and was later admitted to hospital where he remained some time. He complained to the Tribunal of Correctional Police who condemned Madame Seplat to a fortnight in prison, her husband to six days (he being considered responsible for her actions) and ordered them jointly to pay Bonnin 300 francs compensation.

In Britain the authorities offered no such protection. In November 1861 the *Lancet* observed, "The habitual empoisoning of young persons engaged in flower-making by the inhalation of the powder of arsenite of copper used for colouring the green leaves and buds, has been the subject of frequent investigation and of open warnings in these pages. Public attention has been directed to the dangerous results of using the arsenical pigments in industrial processes of various kinds, and on this of flower-making the most emphatic condemnation has been authoritively pronounced." The article concluded by mentioning the prosecution of Madame Seplat with the hope that "this may convey a hint for the improvement of our criminal law."[8]

It would appear not every French dressmaker complied with the law, for in 1880 there was a report from Berlin of a young lady who had developed pustules on her neck after frequently wearing a dress which her father had purchased from a well known Parisian *atelier.* It was dark green and was trimmed with light green leaves. The family doctor recognised the symptoms of arsenical poisoning and chemical tests demonstrated a high percentage of arsenic in the dress material.

**Textiles in the home.**

No account has been found of poisoning which could be traced to wearing green dresses in Britain, green dyes apparently being only used for ornaments on the dresses. However, arsenical dyes were used for other materials. In 1877 one family, whose members suffered from nausea and nervous depression, submitted samples of their carpet and curtains, both of which were green, for analysis. The carpet proved arsenic-free but the curtains and linings contained large amounts of it. The analytical chemists calculated that the bedroom curtains contained the equivalent of 26 ounces of white arsenic.[9]

In 1888 some students of the Civil Engineering College at Cooper's Hill had decorated their apartment with brilliantly coloured cretonnes and Indian muslin. They began to suffer symptoms characteristic of an irritant poison suspended in the atmosphere, and it was then discovered that the cretonne and muslin were highly arsenical, one piece containing more than 19 grains per square yard.

Chronic poisoning on a larger scale occurred at the County Asylum, Berry Wood near Northampton in 1892. The nurses suffered from poor health, the symptoms of headache, neuralgia, loss of appetite, sore eyelids and anaemia not responding to treatment by drugs, but tending to disappear on absence from the asylum. Eventually the cause was found to be due to the green baize curtains used in the nurses' rooms as a cover for dresses etc. These were impregnated with arsenic "to an astonishing extent" and after their removal the symptoms of poisoning disappeared.[10]

The use of these toxic colours was not confined to fabrics. In England, throughout most of the nineteenth century they were used in the manufacture of a wide range of articles. A committee of the Medical Society of London in about 1880 produced a list which included: many types of paper products used for wrapping, covering cardboard boxes, labels, advertisement cards, sweet wrappers, playing cards, covering books, lamp shades, wallpaper etc.; Christmas tree ornaments such as candles and tapers; printed or woven fabrics for garments, curtains and furniture; children's toys, particularly india-rubber balls, painted india-rubber dolls and the stands of rocking-horses; distemper and oil paint as well as lithographers' colour printing; decorated tin plates and japanned goods; Venetian and other types of blinds; baizes, carpets, floorcloth and linoleum; even coloured soap, false malachite and sweetmeats.[11]



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**Dangerous confectionery.**

Nowadays we find it hard to believe that arsenical pigments should have been used to colour confectionery, but in January 1853 two brothers died after eating the decorations from a cake. These had been coloured with sulphuret of arsenic or arsenite of copper. The coroner stated that in the previous two years he had encountered no less than ten fatal cases in which similar ornaments had been eaten by children. More than twenty years later, a green, sugar-coated card Labelled, "For the bairnies" was embedded in a Christmas cake offered for sale in Greenock. On analysis it was found to contain 7.04 grains of arsenious acid, enough to affect seriously any "bairnie" who sucked the sugar from it.[12]

**"Death by Wallpaper".**

The use of arsenical compounds to colour wallpaper was probably the most frequent cause of poisoning in the home. One such case was reported very fully in the *Lancet.* On 1 November 1860, J.B.Metcalfe, MRCS, was called to see a 3½ year old boy, Clarence King, who was suffering from a fit; when the doctor arrived, the convulsions had ceased and the child was semi-comatose. That morning he had felt chilly, had vomited and refused his breakfast, by the evening the symptoms had diminished but during the night he was very restless and his small sister was seized with convulsions, followed by violent screaming and severe diarrhoea. Both children had had a similar attacks three months previously.

Suspecting poison, the doctor looked for a possible source. He learned that both children had been playing with their toys in the breakfast room the walls of which were covered with a green flock paper, and that the boy had sucked a piece of lace which he had found amongst the toys. His evacuations were kept and sent to Dr Letheby for analysis, whilst he was treated with ammonia and given warm milk but died 38 hours after the attack started. A post-mortem was performed by Dr Letheby who was also given a sample of the wallpaper.

He could not prove the presence of arsenic in the evacuations but did find traces in the liver, and distinct evidence in the stomach contents, as well as petechial spots, which are characteristic of arsenic, near the oesophageal end of the stomach. The wallpaper was coloured a dull pea-green with arsenite of copper (Scheele's Green) and the size used was so decomposed by the damp atmosphere that the colouring could be brushed off by the slightest friction. The flock patterns were of a deeper green and barely adhering to the paper owing to the damp. Six square inches of this paper, weighing 41.47 grains, contained 12.99 grains of the green pigment, accounting for almost one third of its total weight - enough to kill two adults.

The jury's verdict was, "That Clarence William King had been poisoned by the inhalation of arsenical fumes which had escaped from the green paper of a certain sitting room and that the manufacturer of such a paper had been guilty of very careless and culpable conduct."[13] It is more likely however that death was due to sucking the piece of lace.

Another case of "poisoning by wallpaper" was reported in February 1860. Three children who slept in a bedroom with newly applied green paper became emaciated and restless with twitching facial muscles. The doctor, suspecting gradual poisoning, suggested they should be moved to another room whereupon they recovered.

On 24 November 1860 the *Lancet* carried a 1½ page editorial on "the atrocious practice of colouring hanging-papers with arsenical pigments". The editor suggested that:

1. Everyone with a room decorated with green paper or paint should investigate the colour's composition, and check the family's health.
2. Medical Officers of health should inspect wallpaper factories to discover the extent to which arsenical and other poisonous pigments were used. Observe the health of the employees, and caution the manufacturers against such dangerous substances.
3. The medical profession should lose no opportunity to inform the public, and should draw the attention of architects, builders and decorators to the subject.

In 1862 the same periodical contained several similar items. Dr G.S.Morris, MD of Gisborough, Yorkshire, advised people never to use green wallpaper after discovering that his own children were suffering from irritable stomach and bowels, loss of appetite and a "deadly paleness". Since he had removed the green paper from their bedroom they had required no medicine and now had rosy cheeks. Henry M'Cormac, MD of Belfast, suggested an easy test for the detection of arsenic in wallpaper. If a piece of suspect paper were ignited, and then the flame blown out, the smoke from the smouldering paper would smell of garlic if it contained arsenic. Frederick Meggy, MRCS of Lancaster, noticing that a friend was not responding to treatment from a homeopath and suspecting slow poisoning from arsenic, observed that the sitting room had green flock wallpaper. Bravely, he asked for a sample of dust from the top of a bookcase. It proved to contain large quantities of arsenic; his first "prescription" was "removal of guilty paper".[14]

**Legislation.**

In October 1862 the question of legislation was raised again. The *Lancet* wrote that it was "a surprising proof of the extent to which our Government carries the principle of respecting freedom of trade that a practice [the use of arsenical pigments] so deleterious to life and health has not been long ago repressed", and concluded with, "Green colours in abundance may be found which substitute at a very slightly enhanced cost.... In France it has for some



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time been made penal to use these pigments. The manufacturers there grumbled a little at first, and one or two fines were imposed and weeks of imprisonment.... The end has been that arsenical pigments are abolished there. Why should not a similar legislative enactment be passed here?" [15]

Dr Orton of Limehouse in January of the following year read a paper on 'Arsenical Paper-hangings' at a meeting of the Association of Medical Officers. A manufacturer was introduced to the gathering who exhibited samples of light green papers which contained no arsenic and yet could be produced as cheaply as those that did.[16]

A previously unrecognised danger was discovered when a retired master mariner in St. Davids suffered a severe attack of arsenical poisoning in 1870. When preparing to re-decorate a room, he had removed a layer of purplish paper so revealing another layer which was green. Without soaking it first, he scraped it off and inhaled a considerable amount of copper arsenite in the process. He recovered but was very weak for several days. In the next few years it was shown that arsenic could also be found in wallpapers of different colours.[17] A case occurred after a single night's occupation of a newly papered room in 1876. Letters to the manufacturers failed to obtain a reply and the Home Secretary was notified of the continuing danger.[18]

The medical profession was now becoming seriously concerned. At a meeting of the Medical Society of London in April 1879, wallpapers, the manufacture of green japanned tea canisters, loss of pigment from Venetian blinds and the use of arsenical indoor paints were all discussed. Two of the doctors had themselves been sufferers of arsenical poisoning due to house painting and one of them, Mr Malcolm Morris, proposed a committee should be formed to organise a deputation to the Government. Morris was made honorary Secretary and sent out a questionnaire to medical practitioners asking:

1. Have you observed during the last five years any cases clearly traceable to arsenical poisoning produced by wallpapers, paint, furniture, wearing apparel etc. ?
2. Any cases previous to that time ?
3. What were the first symptoms that led you to suspect this form of poisoning ?
4. State briefly the prominent characteristics of each case.
5. Were there any external symptoms of irritation ?
6. How long was it in each case before the patient recovered.?
7. Were any cases fatal ?
8. What article contained the poison ? What detection tests were employed ?
9. How many cases occurred in men, in women and in children ? [19]

At a meeting later in 1879, Mr William Foster, MA, FCS, read a paper describing experiemts which suggested that Scheele's Green did not give off white arsenic at ordinary temperatures, nor did paint containing it produce arseniuretted hydrogen when drying. However, atmospheric contamination due to dust was a completely different problem. This paper lead to much discussion, the queries and differences of opinion showing the lack of contemporary knowledge of the way the poison was released from wallpaper and other materials.

The Factory Act of 1833 had established a factory inspectorate for some industries, but it was not until the 1860s that a Children's Employmednt Commission investigated a number of unregulated industries, one of them being paper staining. Their recommendations resulted in the passing of the Factories and Workshops Act of 1867. This however still did not stop the manufacture of arsenical papers and textiles, but the amount of industrial disease shown in these "dangerous trades" during the last quarter of the nineteenth century led to the passing of the 1895 Factory and Workshop Act. This "obliged every medical practitioner attending on or called to visit a patient whom he *believed* to be suffering from poisoning by lead, phosphorus or arsenic, or from anthrax, contracted in a factory or workshop, to notify it to the Chief Inspector of Factories. At the same time the practitioner had a duty to report such cases to the local inspector of factories and to the certifying surgeon." [20]

By 1891 the situation had improved as the pigments used for wallpapers were commonly non-arsenical. Nevertheless some cases of poisoning could have been due to old wallpapers as many rooms had been decorated without stripping the walls first. It was suggested that damp and decomposition might be responsible for sublimation of the poison between the layers, (sometimes as many as five to twelve) and finally into the atmosphere.

The annual report of the Chief Inspector of Factories and Workshops of 1901 notified only twelve cases of arsenical poisoning, and of these, seven had occurred in galvanising works. The problem could be considered to be under control.

Wallpaper would appear to have been more harmful under damp conditions, but did damp really result in the release of arsenical vapours, or were the symptoms only produced by toxic dust being brushed off the surface of the paper by physical contact ? There can be no doubt that considerable amounts of pigment had been applied so loosely that it did brush off, but in 1893 the Italian biochemist, Gosio, showed that a mould could convert the arsenical compounds used into a poisonous gas.[21] This mould, *Scopulariopsis bevicaulis*, often found in wallpaper paste converted the dyes to the gas dimethylarsine. This then escaped into the room, so the possibilty that this gas had been released from old papers which had not been removed can not be dismissed. As late as 1931 a child in the Forest of Dean died from dimethylarsine poisoning, the house in which he lived was so damp that the walls were mouldy and arsenic was a constituent of the plaster which covered them.[22]



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### The Death of Napoleon.

No account of poisoning by arsenical pigments would be complete without referring to the hypothesis that Napoleon was killed by arsenic in the wallpaper of Longwood House on St. Helena. Richard Gordon discusses the question in his book *Great Medical Mysteries* and the following facts are drawn from it.

From April 1816 Napoleon's health was poor, by July 1820 he was really ill and died on 5 May 1821. The post-mortem revealed an ulcer which extended for almost the entire length of the upper edge of his stomach, and he was thought to have died from cancer of the stomach. Many Frenchmen believed that he had been poisoned by the British. Nearly 160 years later, in May 1980, a chemist, David Jones, broadcast an item on arsenical vapours emanating from nineteenth century wallpaper. This resulted in a Norfolk lady producing a scrapbook which contained a piece of beige flock wallpaper with a pattern of green and brown rosettes. It was labelled, "This small piece of paper was taken off the wall of the room in which the spirit of Napoleon returned to God who gave it."

It was faded but of the same pattern as that in the drawing room of Longwood House in which Napoleon had spent his last week alive. This house is known to have been so damp that the paper rotted on the walls and was changed in 1819. The arsenic content was estimated to be 0.12 Grammes per square metre, only one fiftieth of that in some Victorian paper being currently stripped from a stately home in Northumberland. However, we do not know the *original* arsenical content of the paper from the scrapbook. If the cause of death was dimethylarsine, its concentration in the air was probably more dependent on the degree of dampness than the amount of arsenic in the paper, as Dr C.R.Sanger of St. Louis had claimed in 1893 that the mould grew better with low concentrations of arsenic than with high ones.

We can not be sure of the cause of Napoleon's death. Dr Gordon suggests that there was no chronic arsenical poisoning because the vomiting and diarrhoea which he suffered were not accompanied by laryngitis, smarting eyes, eczema, skin pigmentation, numbness or wasting of the limbs due to neuritis. He believes that Napoleon had a non-malignant peptic ulcer which perforated the stomach wall in July 1820, but that this adhered to the liver so retarding the seepage of the stomach contents into the abdominal cavity. Later, this probably leaked and Napoleon died in shock. This diagnosis would agree with the post-mortem description of the body. However, "Death by Wallpaper" is such a bizarre idea that it will be a long time before the belief that it was the cause of Napoleon's death is rejected - and probably the French will always believe that he was deliberately poisoned by the British.

The one indisputable fact which has emerged from this investigation on poisoning by arsenical pigments is that politicians have changed very little over the past 150 years. It is to be hoped that they are no worse and that in another hundred years the episode of the "mad cows" and Creuzfeldt-Jacob disease will be just another unhappy episode for historians to study.

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Sent by Dr. Glenn Sonnedecker:

I have a spelling checker
It came with my PC;
It plainly makes four my revue
Mistakes I cannot sea.

I've run this poem threw it,
I'm sure your pleased to no,
It's letter perfect in it's weigh,
My checker tolled me sew.

To rite with care is quite a feet
Of witch won should bee proud,
And wee mussed dew the best wee can,
Sew flaws are knot aloud.

Sow ewe can sea why aye dew prays
Such soft wear four pea seas,
And why I brake in two averse
By righting want too pleas.

Four of nine verses by Jerrold Zar in the *Journal of Irreproducible Results,* Jan.-Feb. 1994.

Is this a hint? (Editor)



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## OPIUM SMOKING.

**A.F.P.Morson.**

Smoking is an extremely ancient practice. Man discovered that the effect from smoking could be obtained more quickly than by eating the dried leaves of tobacco, opium, hemp, either alone or in combination with the leaves of other plants. At first it was probably a type of cigar with dried leaves being wrapped in maize leaves as with marijuana and tobacco, a convenient method and one lending itself to variations in taste and rate of burning. Producers became adept at satisfying the varied tastes of their customers by altering the proportions of different sources of tobacco or opium, the two most frequently used substances, and blending in sugar, lemon extract and other flavourings. The same sensitivity to customer preference was once used to alter formulation in the tobacco industry; many will remember the wide range in smell and taste in tobacco products produced in the 1930s and 1940s for pipe and cigarette smoking.

Opium smoking is associated with the Chinese because they took to it so much in the middle of the seventeenth century when the Chinese emperor banned tobacco smoking. As with most edicts in that vast country, it seems probable that the ban was not wholly effective.[1] However, it placed an emphasis on the alternative, that of opium poppy growing. The Chinese started to increase their opium production in Gansu, Yunnan and Sichuan provinces to satisfy the increasing demand for a substance used both medicinally and socially. Opium had long been a feature of hospitality and it was an honour for guests to be offered a pipe. The wealthier the household, the more luxurious the paraphernalia used; just as in the West where cigarette holders, lighters, pipes and tobacco jars were produced in precious materials, sometimes decorated with jewels.

We must remind ourselves that the living conditions of the Chinese made the population vulnerable to disease, something which applied to most of those who lived in south-east Asia. Bamboo and grass houses, built cheek-by-jowl along river banks in hot, humid climates were rat and cockroach infested, as well as favourable to the growth of flies and mosquitoes. The personal habits of the Chinese made matters worse. So they suffered from fevers, diarrhoea, dysentery, typhoid, measles and occasionally cholera. The suffering was great and the death rate high. Thus opium became a valued part, not only of the pharmacopoiea, but of over-the-counter trade for self-medication and social use. As in eighteenth and nineteenth century Europe, it was used extensively and was incorporated into tea and other drinks, in fact in any convenient form to take off the edge of routine physical discomforts of a hard life, as well as when necessitated by clinical need.

The opium smoking habit spread to eastern and western North America and to Australia, in fact to anywhere where Chinese colonies were established. This was recognised by the Dutch in their East Indian colonies when they banned the use of opium by all except the Chinese. As trade and contacts developed, so there was an exchange of ideas including the smoking habits of the Chinese with those of the Middle East. The "peculiar effects" produced by smoking opium were known in these two areas long before Westerners knew about them, and few Westerners, if any, were allowed to observe the practice especially in China. As a result many myths have arisen. Some of these were due to ignorance, some created to disseminate propagands because of the fear of addiction, and some to take sides in historical discussions rather than to discover facts and to understand what happened.

By 1700 opium shops had been started, and by the last quarter of that century, indigenous production was supplemented by imports from India, the Chinese maintaining that Malwa and Patna opium was of better quality than their own. Merchantmen sailing between India and China were soon carrying cargoes of opium, American ships being among the first to enter the trade. The Chinese reacted in typical fashion by overtly implementing the prohibition of the cargoes, and covertly allowing huge quantities to be imported; the government agents making fortunes from the bribes extorted.

The plant hunter, Robert Fortune, made some interesting references to opium smoking in 1847.[2] He wrote, "the mandarins use opium and probably his celestial Majesty also", and interestingly, he felt that "all intelligent foreigners and the more enlightened Chinese agreed " that the importation of opium should be legalised as it would remove the demoralising effect of smuggling and provide a useful revenue to the Chinese treasury. A cynical attitude to which many did not subscribe.

From his own experience Fortune had no hesitation in saying that the number of Chinese who used opium to excess had been very much exaggerated. When travelling with Chinese who were opium smokers, he was surprised to find that a few whiffs were all that were taken, the user passing the pipe to one of his friends and walking away to his business. An echo of this occurred when I asked the man who had been Nationlist China's last ambassador in London about opium smoking when he was a student in Peking in the late nineteenth and early twentieth century. Dr Cheng replied that nearly everyone tried it, most disliked it, some became occasional users, and a very few regular users. "Just like beer in this country", he said, "there are a few who take it to excess". The effects of this addiction have been well described, a pallid, haggard look, the euphoria produced by the first pipe of the day, and the languid movements with an idiot smile on the face.



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An American doctor in Java at the end of the last century believed that a small quantity of opium made a positive contribution to the comfort of day-to-day life and that the vast majority of opium smokers escaped severe addiction.[3] The fear of addiction among smokers in London led the *British Medical Journal* in 1885 to publish a leader which pointed out that a card, advertising an establishment where opium smoking is taught was to be opened in the West End,had been issued. It made a plea for restricting the sale to "chemists and dispensing practitioners", evidence that the habit had spread to London.[4]

The preparation and use of opium for smoking is a rather more complicated process than that for tobacco. The experience of the Chinese in handling and storing opium was accumulated over centuries. They knew that it should not be allowed to dry out and were careful to check that poppy leaves and other wrappings had been used in packing. If opium has dried out too much then it is very difficult to get it to dissolve in water, the first stage in the preparation of smokers' opium or *chandoo.*

The Government analyst in Hong Kong in 1880, a pharmacist, Hugh McCallum, described the making of *chandoo* in the *Pharmaceutical Journal.*[5] Some 80 Chinese coolies lived in the same building as the boiling rooms, some sleeping in a loft above the pans. They lived in an atmosphere saturated with the odour of opium, "yet all seemed in good health", and he was told only smoked opium when any of their friends came to visit them.

Before starting on the preparation of *chandoo,*the opium was carefully selected in the same way that any prudent buyer would have done in London. The cakes were unwrapped, cut up, placed in copper pans with a little water and boiled over a charcoal fire. The furnaces were small so that the building that McCallum described had several rows of them. This factory boiled six to eight chests of Patna opium in a day, that is about 1,000 lbs. of opium.

After standing in the pan for fourteen hours the batch was divided up, each smaller batch being equivalent to about 5lbs. of opium cake, to which 10lbs. of water was added. The mixture was stirred and boiled to a thin paste, taking about five hours, then three gallons of water were added and the mix left to stand for up to fifteen hours. A bunch of lamp wick, (the pith of a local plant) was put into the mass, a clear brown fluid decanted off and filtered through bamboo paper.

The residue was washed through a calico filter with boiling water and the filtrate concentrated by continuous boiling. The residue is called *nai chai* or opium dirt and was "the perquisite of the head boiling coolie" who was said to find a ready market for it in Canton. This inferior material was known to be used for smoking and there are occasional references to its use for suicide when swallowed with water.

The decanted liquid was heated and stirred vigorously, fans being used to accelerate evaporation. The thick, treacly liquid was then stored for months before being put into small pots, sealed and sold. A large trade with China, America and Australia was conducted from Hong Kong at the end of the last century.

Variations in this process obviously existed in different places, but all identified four grades of opium: raw, prepared or *chandoo,* opium dirt or the insoluble *nai chai,*



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and dross which was the scrapings from pipes - and the most poisonous kind. McCallum remarks that the "morphia value" of *chandoo* could have had little to do with its smoking value after all the boiling and processing. McCallum asked what it was that produced the peculiar effects when smoked, a point also made by the American, Dr James Rush of Cornell University.[6] He believed that after all the processing and the smoking only one tenth of the morphine was absorbed by the smoker, and that this was within the dosage administered for pain. Neither man can be said to have made a scientific judgement. Nonetheless the processing must remove some of the alkaloidal content, the burning destroying more, but the quick absorption in the lungs resulted in the immediate reactions which are also experienced by tobacco smokers.

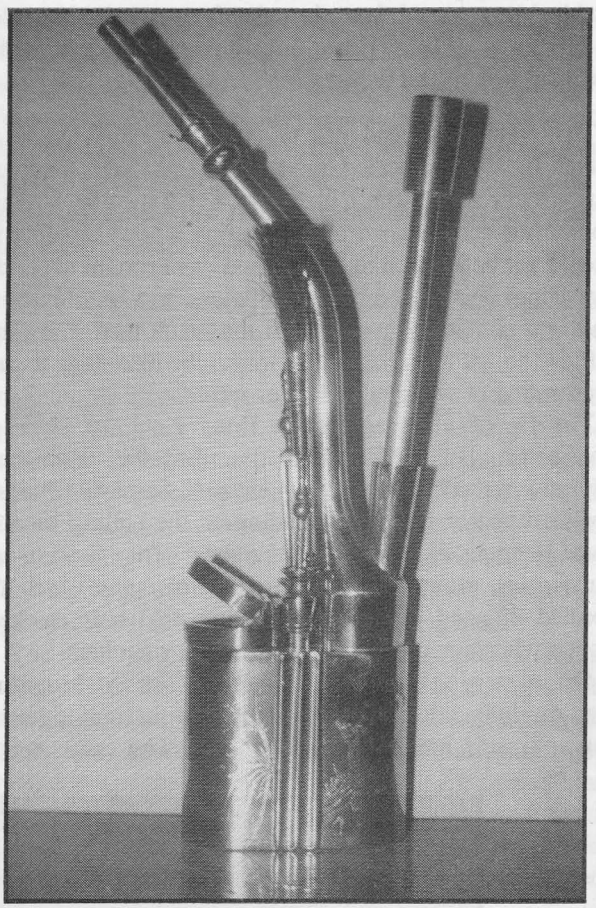
An opium smoker keeps his opium treacle or paste in a box and weighs out the small doses whenever needed. He uses portable scales and a long handled spoon with a very small bowl to pick up the tiny pieces. He collects a small blob on the end of a needle and holds it over the flame of a spirit lamp until it bubbles. Then he puts it into the bowl of the pipe or into what is called the damper which is detachable and has a small hole for the opium. The bowl or the damper is then held close to the flame to make the opium burn.

The smoker sometimes lay on a bed which had a wooden or ceramic pillow, for the Chinese sleep on their backs and the women need to keep their heads above the bed to preserve their elaborately coiffeured, but infrequently washed, hair. The smoke was inhaled in one or two breaths, probably quite long ones, which was sufficient for all except the hardiest smokers. The smell is said to be sweetish and oily, somewhat like thick cream.

It is clear that such a complicated method required practice and lent itself to ritual. Thus the paraphenalia of opium smoking became the subject of careful design and high art in its decoration. As in the West with tobacco pipes, pouches and jars, the range of materials used was wide. Opium boxes were given as wedding presents and made from everything from wood to jade, often engraved with phrases, even poems, alluding to the pleasures of smoking and terming opium a "long-life mud".

As with the boxes, the wealthy had their pipes made from prized materials, even solid jade was used, or else encased ordinary bamboo in silver, gold or ivory. Cloisonné enamel and jewels, both precious and semi-precious, were used as decoration, and the silver encased wooden pipes were often ornamented with repoussé work.

The pipes, boxes and other items were made by recognised craftsmen who signed their work. Opium boxes especially, have become collectors' items because of the wide range of materials, the artistic designs, the decoration and the convenient size. Horn boxes, the size of thimbles are the smallest, but highly decorated ones may be three or four inches in diameter. They are valued for the motifs from Chinese mythology and legend, as entertaining as they are beautiful. Pipes and boxes from Tibet, Burma and other Asian countries are as well-known as the Chinese ones. It is the pipes, however, that have the greatest fascination. These are of two designs: the long tubular pipe and the brass water pipe. The latter is said to have been introduced to Chinese seamen by traders from Arabia.



The water pipe was designed principally for use with tobacco but all smokers used it for other substances as drawing the smoke through water cooled it. Smokers mixed opium with tobacco and other dried leaves such as those of *Ficus septica*, experimenting by varying the proportions. The water pipe was convenient because it was small, had a storage compartment and slots for a pair of tweezers and a cleaning brush; it was self-contained except for a lamp. The bowl is half filled with water through the shorter arm which has a short length of tube which slides into the arm connected with the bowl. By sucking and blowing on the longer arm of the pipe, the correct level of water is ensured before a quantity of opium or tobacco is lit and put into the pipe; if necessary a spill is used to keep the tobacco burning. The smoke is drawn through the water by sucking on the mouthpiece. With opium, the pipe is refilled and lit after two or three breaths, and often passed round from one smoker to another.



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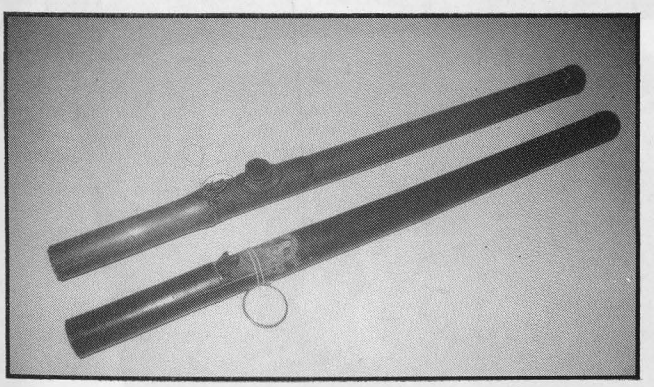
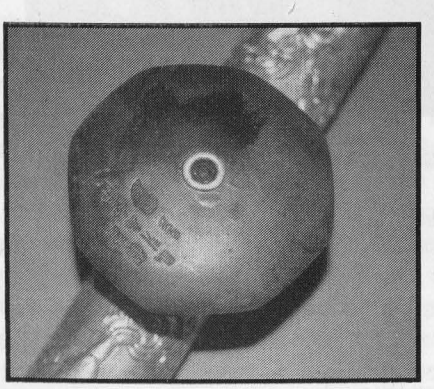
These pipes were usually about 13½ inches high with the longer arm projecting above the base by about six inches. They were engraved and the better ones marked by the craftsman with perhaps a message as well. They vary from well made solid brass examples to more flimsy ones made from sheet metal in separate parts with fretted edges to provide decoration without adding much weight.

The engravings are sometimes of figures, the eight immortals of Chinese mythology for example. Other signs exemplify the Chinese propensity for symbolism and love of puns. The Chinese words for Buddha and happiness have the same sound, similarly the Mandarin words for hand and longevity sound alike, so the Chinese will carve a Buddha's hand to represent the desirable conditions of happiness and longevity.

A tubular opium pipe consists of two components, a long, straight tube, generally of bamboo, sealed at one end, and a damper. Most tubes were sixteen to eighteen inches long but an illustration of one shows it to be an estimated 2½ feet long. Three-quarters of the way along the tube a hole was made that was fitted with a saddle, into which the second component, the damper, could be slipped. The damper was a hollow bowl with a short stem for insertion into the saddle, and was nearly always covered. The damper was thus like a covered cup with a short stem in the bottom and a small hole in the top in which the opium was placed.





*Damper showing Chinese script*

Pipes vary very much in diameter and occasionally have fixed bowls at the end like our tobacco pipes. Possibly these were a late refinement for those who wanted just a puff or two before continuing with what they were doing; being of small diameter made them easier to suck, the large bamboo pipes being clumsy.

Some pipes were sectional, presumably as part of a compact travelling kit. Dampers were nearly always detachable as they needed cleaning, just as the hole in the pipe itself could become clogged with the burnt remains of *chandoo.* They were made of a wide variety of materials, ceramic, glass and wood. The shapes were circular, octagonal, square, even bell or turnip-shaped and decorated with the maker's mark. In the later nineteenth century, *yizing*, a type of terracotta was extensively used for pipe dampers, some of which were made for export to collectors, and not for use.

Attempts have been made to classify dampers by shape and size into eleven types, mainly as the result of an archaeological analysis of Chinese sites in New Zealand.[7] A smoker probably owned more dampers than pipes. They were devised so as to be stored upright and be available for friends to use with their own pipes. this is another similarity with tobacco smoking in the West where pipe racks were once popular. The pleasure of opium smoking, like eating and drinking, has always been enhanced by good workmanship of expensive materials, artistically designed.

Pictures of opium smoking are fascinating, revealing wide differences of approach. They illustrate a remark of Robert Fortune's that, "all the exaggerations and absurdities which have ever been written on China and the Chinese." Some Europeans depict opium parlours as scenes of depravity. It may be that those who actually observed opium smoking tried to depict accurately what they saw, but illustrations which show entrances with doric columns, bare armed women attendants in western dress and even storage bins labelled in western characters, should be treated with caution! These are propaganda and one doubts if the artist was any nearer to China than England or the Continent.

Such attempts to scare or depress have been published without question by some authors alongside other pictures of apparently greater authenticity. The captions suggest that their motives have little to do with objective attitudes. A few photographs have been published and these show plainly furnished rooms with both chairs and beds, nor are the people spectres of humanity.[8] Some of the artefacts and habits of smokers may be seen in Chinese paintings, some of which were produced solely for export in the second half of the nineteenth century. There is one series of twelve which depicts the effects of smoking and the subsequent addiction of the son of a wealthy father - obviously a cautionary tale.



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I have sought to explain the manner in which opium is smoked and to draw attention to the beautiful objects used. I find it difficult to believe that fine workmanship of expensive materials is necessarily associated with addiction and degradation, any more than the drinking of alcohol from beautiful vessels is evidence of dipsomania. Equally, it is no argument in favour of either substance that heavy consumption has not always led to early death.


## Acknowledgements

I would like to thank the British Museum for their courtesy in allowing me to photograph the tubular opium pipe and damper.


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## DIARY DATES.

**The Foundation Lecture.** Wednesday, 19 March 1997.
The Society's house, Lambeth.
"From Poor Law to National Health Service", by John Hunt.
Application for tickets (gratis) must be made.

## PROPRIETARY ARTICLES TRADE ASSOCIATION.


**Dr P.M. Worling.**


One hundred years ago pharmacy was in turmoil because the cutting of proprietary medicine prices by the multiple drug stores and co-operatives was leading to the point where many chemists and druggists were finding it unprofitable to continue trading.

The year of 1996 marks the centenary of the formation of the Proprietary Articles Trade Association; the result of the work of one man, Sir William Samuel Glynn-Jones.

Glynn-Jones qualified in pharmacy in 1891. After a period of dispensing for a doctor in the East End of London, he opened a pharmacy at 159, East India Dock Road. In common with many pharmacies situated in poorer districts, he found that the economic circumstances of running a business were very difficult and proved hard to make a profit.

A major reason was the low level of dispensing compared with that of the more affluent parts of the city. This meant the business depended to a large extent for its profits on the sale of proprietary medicines. In the case of his pharmacy this represented over half the turnover, but this profit was being steadily eroded by the need to meet the cut prices offered by competitors.

The sale of proprietary medicines had started to grow in the middle of the eighteenth century and were often referred to as secret remedies. For many years they were mainly supplied to retailers and the public direct by newspaper publishers and booksellers. With the growth of the chemist & druggist the position changed. They found that these medicines were reasonably profitable and the public came to accept that this was the right outlet. The medicines were advertised widely and with the expansion of the urban population, particularly that of the middle classes, sales grew. All sales were at the manufacturers' list price.

Towards the end of the nineteenth century the co-operative movement, which had been founded rather earlier, together with the new multiple stores increased their outlets. The cooperatives' main attraction was a rebate given in the form of a dividend based on the level of purchases. The multiple stores attracted customers by offering discounted prices, and introduced the philosophy of low profit and high turnover.

The manufacturers' list prices were structured to offer a lower price for buying larger quantities, and the larger volume that these stores turned over enabled them to buy proprietaries at a considerble discount compared with the private chemist. As a consequence, their selling price (including profit) was frequently equal to the buying price of the small chemist & druggist. Proprietary medicines were also available from grocers and they too followed the downward trend in prices, forcing the pharmacist to follow suit. This had a damaging effect on profitability.

Sometimes the larger stores sold certain items below the normal buying price as loss leaders in order to attract






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customers, but it was impossible to match these prices and stay in business. An alternative was to offer a more profitable item for the proprietary requested by the customer, such as a different proprietary or else a product made in the pharmacy. In the poorer areas the patients were used to asking the chemist for advice who was often able to influence their choice. If the substitute was refused then a trial sample might be offered

It was estimated that by 1890 as much as 20% of all requested proprietary medicines were substituted. This affected the manufacturer, but despite the general opposition to price cutting from all quarters and attempts being made to make local agreements to maintain prices, no solution could be found.

Glynn-Jones decided to take action. He published his ideas and circulated them at his own expense in the *Anti-Cutting Record.* He wrote that while the chemists were "the chief sufferers" and that "from them must come the initiative", the only solution was to persuade the retailer, the manufacturer and the wholesaler to act together. There was a good response and he organised the first general meeting at Anderton's Hotel, Fleet Street, London, on Wednesday, 29 January 1896, at which the PATA was formed.

The proposal was made and accepted that Association members would only supply proprietary medicines to chemists and grocers who agreed to sell them at list prices. If retailers were found to be guilty of cutting prices they were warned that action would be taken if their prices were not adjusted. If they did not comply, their name was circulated to all the manufacturing Association members who would then withhold further supplies.

Manufacturers who joined the Association were taking a risk. They wanted to ensure wide distribution of their products and were concerned that some retailers would refuse to hold stocks. However a sufficient number could see the advantages of establishing a more stable market. The first list published in the *Anti-Cutting Record* of 1896 contained fifteen items. However the Association grew and in the annual report of July 1897, 54 articles, 40 manufacturers and 17 wholesalers were listed. Meetings were held throughout the country and the movement received universal support. The only town which voted against the idea was Glasgow but this decision was reversed a few weeks later.

There was some opposition and a number of problems arose. The position of the co-operative societies was difficult but in the end they agreed not to pay a dividend on PATA listed items. They retaliated however by making their own substitute preparations and offering them as alternatives.

Most of the objections were made in the press or in advertisements. Blackham's Drug Stores of Holloway Road published and advertisement, part of which read: "This sorry league has for its avowed object raising the prices of all proprietary articles. After about 60 years brilliant success of Free Trade this Association attempts the insane process of trammelling enterprise and putting the brisk business-like Store Chemist on the same level as the Sleepy, Lazy, Fossilised, High Priced, Stale Goods Chemist....The funeral rites of this Society will not be long postponed." In spite of this opposition the Association continued to prosper, and by 1898 over 150 products had been registered and the principle of operation accepted.

In future years there were a number of enquiries into the PATA. The first was in 1919 when a sub-committee of the Central Profiteering Committee reported that the system worked to the advantage of the public by preventing inflated prices in times of scarcity and prevented speculative dealing by wholesalers. In 1929 the Labour Government formed a Restraint of Trade Committee and the PATA submitted evidence on its operation. It was found that "...the right to combine in defence of, or in support of, trade interest is recognised. If the real purpose of the combination is not to injure another but to forward or defend the trade of those who enter into it, no wrong is committed and no action will lie, although damage to another ensues, provided that the purpose is not affected by illegal means."

In 1970 the case for Resale Price Maintenance on medicines came before the Restrictive Practices Court. The case for retention was presented by the Association of the British Pharmaceutical Industry, the Proprietary Association of Great Britain and the Proprietary Articles Association. Judgement was found in favour of the continuance of price maintenance.

The judgement, among other points, concluded that: "The removal of re-sale price maintenance from proprietary medicines would result in more chemists going out of business more quickly than would otherwise be the case, with a consequent loss of outlets for not only proprietary medicines but also prescribed medicines."

"Although there might be no reduction in the number of establishments in which a comparitively small range of those proprietary medicines which are most frequently in demand would be sold by retail, there would be a substantial reduction in the number of establishments in which other proprietary medicines would be obtainable and this would be detrimental to those members of the public who wish to buy these latter classes."

After a century the market has gone full circle with multiple food stores once again attacking the principle of price maintenance on medicines as a means of increasing their profit, without regard to the professional responsibility which should attend the sale of medicines.

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# EARLY DAYS IN PHARMACY.

**Dr J.E.Adderson.**

## Entrance into pharmacy.

Shortly after my fifteenth birthday I started work as a general labourer to a firm of market gardeners. This had resulted from a medical decision that owing to visual deterioration I should have a years absence from my grammar school, the consultant advising "outdoor work". So for a year, I pushed barrow-loads of coke for feeding the boilers, scrubbed flower pots, knocked soil off turf to obtain loam for the preparation of composts and many other tedious and unskilled tasks.

As no further deterioration occurred I was given the choice of resuming my studies. I had no difficulty in arriving at a decision, notwithstanding the consultant's view that work outside was a healthy option. I do not think I was convinced that he had had personal experience! I had only five months to prepare for the London School Certificate and Matriculation exemption examination, but achieved it.

Then came the choice of a career, and like many pharmacists, I entered almost by accident. In the school summer term, the headmaster at morning assembly would read out letters from potential employers. These were usually for what might be described as "white-collar jobs" in building societies, accountants' practices, local government and the like. A local pharmacist was looking for an apprentice, and two boys were interested. My fellow student arrived first at the shop and was given the job, the pharmacist making a note of my name and address.

I thought no more of this. Being in the middle of the War, employment was very much the concern of officialdom and I was directed to attend for an interview at an electro-chemical company making batteries. I was also interviewed and shortlisted as a trainee weights and measures inspector. Then a letter arrived from another local pharmacist seeking an apprentice.

My parents had little knowledge of higher education or of the trades and professions. Opinions were sought from two pharmacists, both owning businesses; their views were completely opposite. One advised against pharmacy on the grounds that the status and financial rewards were not good and that for comparable effort more rewarding careers were available. The other proprietor recommended it, with the proviso, "He must qualify". Those were the days when there was a number of unqualified dispensers who had finished an apprenticeship but for some reason, often lack of finance, had never qualified. Their prospects were very limited and not enviable - hence his warning.

This left my parents and myself in something of a quandary. Nothing else seemed to be in the offing, so it was decided that my father and I should see the letter writer. He convinced us that this was an opportunity not to be missed. I was impressed by the idea that it was a closed profession and that only those holding a registerable qualification could hold managerial positions. In addition, the Leicester Apprenticeship Scheme enabled one to qualify without the need to find a lump sum for college fees and books. Grants or free tuition were not generally available and this scheme was a marked incentive as my parents might well have found it difficult to finance fulltime education.

## The Leicester Apprenticeship Scheme.

This scheme had been set up through the foresight of a group of local pharmacists. Under it, sufficient money was retained from the weekly wages of the apprentice to pay for one year of tuition for the Society's Intermediate Examination (or Preliminary Scientific as it used to be called) and one year for the Chemist & Druggist Qualifying Diploma course. The less attractive feature was the reduction in weekly salary.

I had earned £1 2s. (£1 10p.) as a gardener's boy but my reward as an apprentice was to be only ten shillings (50p.) a week in the first year, rising by five shillings per week per year for each of the four years of apprenticeship. Under the Scheme, however, six shillings a week were retained for the future, thus my take-home pay for the first year was four shillings (20p.) a week. Fortunately my employer generously paid my share of the Unemployment and Health Insurance stamps, otherwise I might have owed him money, at least in the first year!

It was not so long ago that apprentices had paid for the privilege of working by means of a premium. Mr F.T.Wilby, my potential employer, pointed out that he would not be asking for one, the inference being that he might well have done so.

## Suburban pharmacy.

Wilby's had had several shops in Leicester, but by that time, were down to two. They were well known throughout the East Midlands as the manufacturers of Wilby's Teething Powders, widely sold in pharmacies and other shops. The proprietor explained that he intended to retire and sell his remaining shops to the current managers, consequently I would not be apprenticed to him but to Mr V.S.Tinkler.

Former apprentices had been required to spend part of each week at different shops. The senior apprentice, D.R.Bragg, later Head of the Leicester School of Pharmacy, and subsequently Assistant Director of Leicester Polytechnic, still had to follow this regime but I had duties only at the one business. Apprentices were recruited every two years so that there was continuity of labour.



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## A Proprietary Medicine.

Mr Wilby did not sell the teething powder business but retained the right to use part of the premises and to call upon the services of one of the staff for the manufacture and despatch of the product.

As I found later, this process was carried out with what appeared to me to be almost Dickensian secrecy. On the appointed day, F.T.Wilby would arrive, ascend the stairs to the second floor to a room that was always known as The Powder Room, close the door and weigh out the ingredients for a batch. He then did an initial mixing so that the vital ingredients could not be identified. The elderly unqualified assistant would then be summoned and it was his task to incorporate the bulk of the diluent which often took a considerable time. The process was undertaken by hand in a large ceramic mortar.

The powders were hand packed by a lady specifically employed for that purpose. A small scoop was used to obtain the correct amount which was then placed in a paper and folded in the traditional method. This was repeated over and over again. The powders were packed in small boxes of, probably, one dozen to be sold as a box, or in larger boxes to be later opened for the sale of individual doses. These boxes were sold to wholesalers or directly to retailers.

One of my jobs, on occasions, was to go home to lunch via a particular part of the town and look out for the Shepshed carrier, there still being individual van owners who carried goods to particular areas. If I spotted him, I would tell him that there was a consignment of powders to be collected for his area. A far cry from automated computer-controlled delivery systems! When it became a legal requirement to declare the components of medicinal products, it was seen that these powders contained Calomel with a colouring agent and diluent. Not a combination that would now be looked upon with favour.

## Formal apprenticeship and conditions of service.

My father and I duly signed in 1942 the indentures that bound me to Victor Storer Tinkler for the term of four years to serve him honestly, diligently and faithfully in his business of dispensing chemist, to behave civilly and respectfully to him and his customers and to keep his secrets. These indentures run to four foolscap pages and include a schedule of rules.

The working week was from 9 a.m. until 7 p.m. on five days, and from 9 a.m. until 1 p.m. on the half day; in the week before a public holiday the shop would remain open on the half day. The holiday allowance was twelve days, which had been altered from the two weeks printed in the pro-forma indentures. This prevented staff taking the Saturday off plus the subsequent week, and meant that one always had to travel late on Saturday evening to join the family holiday.

In practice, as was common in many pharmacies, evening closing time was variable. Surgeries started at about 5 p.m. and patients would arrive with prescriptions up to and after 7 p.m. If they were persistent then usually we tried to supply the articles. It was of course wartime with all the inconvenience of travel in the 'blackout' and one was conscious of its effects on the customers. Even if we locked the door at 7 p.m.customers already inside often opened it if someone rattled the handle, thinking they were doing a favour! The boss had to balance this service to the customers with his own and his staff's desire to return home.

Most nights we would be away by about 7.15 p.m. unless it was our turn for firewatching duties which entailed staying all night. Christmas Eve was an exception and we stayed open until it appeared that no more trade was likely. These hours were an improvement to those worked before the War when many shops kept open until 8 or 9 p.m.

My wages after deductions were four shillings initially, increasing to nineteen shillings in year four. I kept four shillings for myself and from year two onwards the balance went towards the household income. Nevertheless, it could not have been easy for my parents, particularly during the two years that I spent eventually full-time at college to obtain the Pharmaceutical Chemist qualification when I had no income. My subjective opinion is that it was easier for me when my own children with the aid of grants went to university for three years than it was for my parents.

## The daily round.

The shop had three full-time staff, the proprietor, the elderly male unqualified and myself, plus the occasional help of the senior apprentice. In the first year I spent most of Monday to Friday at the Technical College preparing for the Society's Intermediate Examination; I was required to be at the shop on Friday evening and all of Saturday. With hindsight, I would have been well advised to have studied for London University's external Inter. B. Pharm. exam. which would have saved much labour in future years. My employer had more leanings to commerce than science so naturally advised in favour of the Society's one academic year Chemist & Druggist Qualifying course as being the most rapid way of achieving registrable status.

The premises had been built to combine living and retail accomodation so that there was still a domestic kitchen with an old-fashioned built-in wash copper to heat the water complete with fire grate. This I occasionally used to soften the contents of large kegs by standing them in water and building a fire from waste cardboard. The living accomodation had been converted into an office and several stockrooms.

Outside was a long yard in which we stored such items as large glass carboys in straw-lined metal cradles. These contained bulk acids there being a demand, for example,



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for Spirits of Salts (Commercial Hydrochloric Acid) both by retail and by the adjacent factories. Winchester bottles were filled by tilting the carboy over a funnel, or by a syphon. Protective clothing was not worn nor eye protection. Any present day Health and Safety inspector would have apoplexy!

At the bottom of the yard was a stable and double doors to enable a carriage to enter. The doors gave access to some cleared land on which rows of houses had stood. The boss, who lived about four miles away, decided to solve his travel problem in an unusual manner. Petrol was strictly rationed and although he had an allocation for collecting essential medical supplies this did not stretch to travelling to and from business. He bought a horse and governess-cart. As the land at the rear tended to be a dumping ground for rubbish, one of my earliest tasks each day was to walk across it to clear a path by removing any fragments which might harm the horse's hoofs. This was obviously all part of learning the Mystery and Art of pharmacy. Occasionally I led the horse but I had no natural talent for matters equine.

I would arrive about 9 a.m. to find the unqualified opening-up. Often the boss did not come until about 10 a.m., unless I happened to be late, when by the Law of Perversity, he would be early. I then swept the shop and the pavement outside, the latter I always disliked, feeling with immense teenage dignity that it was *infra dig.* Dusting a bay of shop rounds followed which helped to familiarise one with their contents and abbreviated Latin titles - some being obvious, others less so, and it is quite possible that I confused such things as Ac.Borac and P.Boracis. I would open up the liquids and smell the contents, once with near disastrous results when I opened incautiously a strongly ammoniacal preparation and nearly fell off the ladder.

A stock of bottles had to be prepared for the dispensary; some were newly purchased but many "returns" were salvaged. This was done in the kitchen sink with the aid of detergent or commercial acid to remove the remains of antacid mixtures. It was an unpleasantly cold process in the winter, the kitchen being unheated. There were only three sources of heat in the premises, a gas fire and a gas ring in the office, and a patent heater in the shop, the likes of which I have never seen elsewhere. There was a vertical gas pipe on the shop counter having a tap and screw thread at the top, and the heater which screwed onto this pipe was like two shallow metal cones joined base to base. The lower cone had holes from which the gas was lit. The metal assembly became very hot and, as it was about head height, was a potential danger. I once saw a temporary girl assistant's hair catch alight, but fortunately quickly smothered. Due to the low ambient temperature such items as Glacial Acetic Acid and Oil of Anise became cloudy or even solid in the winter, so they were usually kept on the office floor near the gas fire.

## Dispensing.

The great majority of preparations were made extemporaneously. Liquids outnumbered tablets or pills, both the latter were purchased although we had one regular private prescription for a pill containing ichthammol. This was a "nice" manipulative problem and gave me a little experience in pill making. I probably made about five sets of suppositories in four years. Most items were ordered on the National Insurance prescription forms and were made to the current N.H.I. formulary.

War-time economies were imposed by government decree as supplies dwindled. Alcoholic tinctures were replaced by concentrated liquid extracts, giving rise to problems of accuracy of measurement; 240 minims of tincture in a 12 fluid ounce mixture were replaced by 12 minims of liquid extract. Liquorice was removed from mixtures and gentian replaced by quassia. The inevitable change in appearance gave rise to many queries. No doubt customers would accept an explanation given by the pharmacist, but were more inclined to imagine that I, the apprentice, had omitted an ingredient, or included an incorrect one.

Sometimes drugs having a similar action were substituted, the obvious example being when Ipecacuanha by Squill was decreed. There were no ways round these substitutions, writing out a prescription in full rather than ordering the Formulary name made no difference. Wrapping paper was almost unobtainable, bottles of medicine, waxed boxes containing ointments, and tablets in folded cardboard cartons were all handed out unwrapped.

The range of therapeutic items was markedly different from today. Diuretic drugs were represented mainly by the citrates, and for serious cases, Mersalyl by injection. Antibacterials of any degree of efficiency were Sulphathiazole and Sulphapyridine, and penicillin as an impure brownish-yellow powder did not become available until late 1945 or 1946. We made penicillin cream extemporaneously by admixture with a bland base.

Much treatment must have been palliative. Large amounts of Aspirin Mixture and of Sodium Salicylate Mixture went out, and mixtures of more doubtful action, such as Mist. Pot.Brom. et Nux.Vom. were widely prescribed, although in this case sodium bromide was used owing to the official substitution policy. We kept a wide range of stock mixtures and I could nearly always find employment at slack periods in making these. Everything was made from basic ingredients, the bag of ready-mixed ones to which only water had to be added was unknown. The almost inevitable vehicle for liquid preparations was Chloroform Water which had both a preservative action and a sweet taste.

All these ingredients required considerable storage space, especially as it was prudent to buy to the point of overstocking when supplies were available. We had the



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Drug Room upstairs where the solids were stored and a cellar for the winchesters of liquids. The cellar was entered by steps revealed when a trap door was lifted in the floor just where the counter and dispensing screen met at an angle. There was no guard around the opening and a loud cry of "Cellar open" was given. Once I saw the elderly assistant fall backwards through this hole, either not having heard the call or else been distracted. He suffered no more than bruising and was not, as far as memory serves, absent from work.

Deciphering hand written prescriptions was a perennial problem. One local G.P. was a "terror". He could write a squiggle which could be interpreted as Ammon. cum Ipecac., or as Acid. cum Strych., his representation being a moderately well defined capital A, a small C, and another indistinct capital, with a tremulous line following each capital letter. The pharmacist had to make a judgement, sometimes aided by cautious conversation with the patient. One prescription which proved an enigma to all three staff for over half a day, during which we all repeatedly looked at it, was written as a fairly well defined Pil. plus three hieroglyphs. Eventually it was resolved as H.C.N., that is Hydrarg. Colocynth.et Hyoscyamus. Pharmacy employees took an inordinate pride in their ability to read the unreadable and seemed to regard it as a gross breach of etiquette to telephone the prescriber. Such lack of action probably entrenched the habits of bad calligraphy.

The regular patients were well-drilled into leaving their prescriptions for collection later. It may be that wartime shortages and queues engendered a frame of mind in which instant service was not expected. It could be difficult if a prescription was demanded before the pharmacist arrived, and the unqualified assistant, a man with a lifetime of experience in pharmacy, often had to decide whether to dispense it or not. It was even more difficult when this assistant was on his annual holiday and I was left in sole charge for an hour or more while the pharmacist went to lunch. Patients were generally persuaded to call back later unless I took a chance on a completely legible prescription for tablets or other manufactured item. Minor emergencies requiring first aid could turn up which caused difficulties in trying to attend to such and the counter simultaneously.

Two more serious cases have remained in my memory. One was a woman operative from a local factory with a gory industrial sewing needle protruding from both sides of one finger. She was sure I could pull it out with a pair of forceps and was highly indignant when I declined to do so and advised her to go to the hospital. The other was a man who had taken a large dose of Camphorated Oil in mistake for Castor Oil. I consulted *Martindale* and showed him the reference to the toxicity of camphor so that he was then easily persuaded to go to hospital.

There has always been a problem with the public's view that "the chemist's" was the obvious place to seek first aid. We had our share of dog bites, cuts, scalds etc. and occasionally major incidents, such as when a cyclist was carried in who had tried to overtake a tram only to find one approaching on the adjacent line. There was a dilemma as to the degree of legal liability if one attempted treatment and whether or not this risk was increased if a charge was made for services or materials. My particular *bêtes noires* were foreign bodies in the eye.

There were two busy periods for dispensing, coinciding with the local morning and evening surgeries. It was usually possible to clear the morning prescriptions before the boss departed for his lunch. The afternoon was usually slack and the time tended to drag. The evening surgery patients began to arrive whilst the pharmacist was still at tea in the office, and when he emerged he would dispense any prescriptions still left. The remaining two staff members retired to the office for their tea but were often exhorted to "Hurry up" as prescriptions piled up. I was usually entrusted with any extemporaneous ointments made by the time-honoured method of mixing on a tile with a spatula. It was common for one or two to occur each evening and these were not very welcome if presented at 6.55 p.m.

The dispensary was a simple screen covering a bench wide enough for two persons. It had a sink and cold water tap but no drain, only a bucket below the sink outlet. One of my duties was to remember to empty the bucket at intervals; all of us were cautious in our use of water. Any processes requiring heat were carried out using the gas ring in the office.

## Shortages and substitutes.

War-time produces shortages and the desire of many to obtain whatever is in short supply. After three years of war many branded items were scarce or non-existent, something particularly true of cosmetics. We had a very small allowance, perhaps no more than a dozen, for example, of lipsticks for a six-month period, so like many other pharmacies we made a wide range of toiletries. These were variations on well-known formulae, mostly emulsions (face creams and hair cream), mucilages (wave-set), coloured suspensions (liquid stockings) and pigmented powders (rouge and face powders). When I had acquired some expertise, I was entrusted with their manufacture and packing. I would find it hard to estimate the number of small screw-capped jars into which I have forced creams with a spatula.

These products sold well. At Christmas we purchased boxes and assembled coffrets of cosmetics, carefully including one branded item from our meagre ration and horded for this purpose. It is likely some purchasers bought the box just for this item. It was illegal to impose a condition of sale that one could purchase "A" only if "B" was also bought. However a court judgement ruled that if an assembled compound item was sold, this was not



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imposing a condition of sale, hence the coffret did not breach the law.

Housewives were hard pressed to feed families and particularly to introduce variety into the diet. Gelatine powder was bought to make jellies and suitable flavours sought. Blackcurrant syrup and purée were restricted to holders of children's ration books, as was orange juice, but various ploys were used to obtain them for culinary purposes.

An unusual product that we made for the local ice-cream man was a coloured and flavoured mucilage of tragacanth, or possibly, of sterculia gum. By some means not disclosed to me, he turned this into a saleable ice-cream substitute.

Even such common items as rubber hot water-bottles were restricted to sufferers of named diseases and needed a private prescription for their purchase. One local woman managed to persuade her G.P. that she merited such and we duly sent away this authority. In due course, a greyish-black bottle arrived and when it was produced she publicly upbraided my employer, saying that she hadn't gone to all this trouble for such a drab, unattractive article. Explanations that we had to accept what was sent failed to mollify her.

We made also the usual wide range of "own brand" remedies which gave me additional experience. Probably one of the greatest differences between then and now was the range of item which were pre-packed in the shop, as against the purchase of ready-packed items today. The common powders, such as Sodium Bicarbonate, Boric Acid, Cream of Tartar, were all packed by the classical method of incorporation into folded demy paper.

I can say that these experiences have stood me in good stead, particularly in the field of home remedies. I have rarely been "stuck" when undertaking locum duties and occasionally have been able to elucidate problems for the more recently qualified.

## Out-of-hours.

In spite of the lateish closing time and lack of disposable income, I was quite busy. Two nights a week at night school covered much of the organic chemistry, physiology and practical dispensing of the first year qualifying course. Another night was occupied in helping to run a scout troop, and yet another playing in a night school orchestra. Once I was eighteen I had to join the Civil Defence as a condition of deferrment of call-up which took up an evening and even a whole night.

Thus four years passed and I returned to the Technical College as a full-time student for two very happy years, having decided to take the Society's post-Intermediate two-year course for the Pharmaceutical Chemist Diploma.(Ph.C.).

After National Service I joined the Leicester School of Pharmacy as an Assistant Lecturer. The Head, Mr Colin Gunn, strongly advised me to gain a degree as a necessary step to promotion. This meant part-time study, the external London Inter. B.Pharm. being the hardest stage and taking two years. By special concession I was allowed to attempt the final B.Pharm exam. as an external student after only a further twelve months.

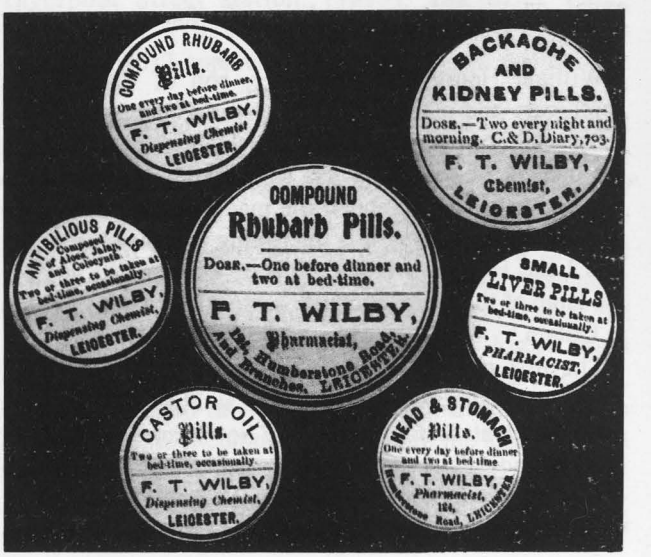
This was not the end of part-time study - possibly I had formed a routine. A thesis for a Master's degree in Pharmacognosy was prepared at Nottingham under the supervision of Professor G. Trease and Dr W.C.Evans. The practical work often entailed very late sessions at Nottingham with a trip back to Leicester after midnight ready for teaching duties later in the day. A Ph.D. in colloid chemistry was obtained at Bradford University, where by now, I was a member of staff.

## Career choice.

When I ponder the advice given half a century ago I wonder if I would now enter pharmacy. It has meant that I have never been unemployed and have earned a modest salary. I have worked as Chief Instructor, Army Middle East School of Dispensing in Egypt, as Chief Pharmacist and Associate Lecturer in the Faculty of Medicine, Jamaica, and had three periods as Visiting Senior Lecturer at Ahmadu Bello University, Northern Nigeria, none of which would have occurred other than through pharmacy.

My choice now would not depend upon the availability of finance and so could embrace careers impossible in my youth. If feasible, I think I would qualify in law. A decade as a part-time chairman of a Social Security Appeals Tribunal has shown me that I could deal with the law's complexities.

However, the Other Man's Grass is always the greener....



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# PHARMACISTS AND THE INTRODUCTION OF GAS LIGHTING.

**Dr J. Burnby.**

Although William Murdock (1754-1839) is usually credited with the 'discovery' of coal-gas illumination, the formation of a luminous, inflammable gas by the distillation of coal had been observed by several people from the mid-seventeenth century. George Dixon (1731-1785) of Cockfield, Durham, who had established a works for the extraction of coal-tar, also experimented in about 1760 with the production of coal gas. He lit his own house with it and, much encouraged, planned to illuminate his colliery. He went so far as to build a large pilot plant but a not surprising massive explosion caused him to drop the idea.[1]

Archibald Cochrane, Lord Dundonald, also experimented on the distillation of coal and in 1782 succeeded in illuminating the great hall at Culross Abbey as well as part of his works for producing coke and tar. It was Murdock however who, after lighting his house in Cross Street, Redruth, in 1792 who pursued the matter further because he was so impressed by the ease with which gas could be made and its efficiency. He made further experiments and suggested to his employer, James Watt, in 1795 that his ideas and the method of production should be patented. Watt was not impressed - and remained so until his younger son, Gregory Watt, wrote from Paris. There he had seen the work of Phillippe Lebon who in 1801 already had lit several large buildings with gas, and even talked of lighting the whole city.[2]

Watt now began to encourage Murdock who then constructed a small works for illuminating part of the factory to celebrate the premature Peace of Amiens in 1802. This was later extended to the foundry and other work shops.

William Henry of Manchester, son of Thomas the apothecary and manufacturer of pharmaceuticals, began a series of lectures in late 1804 in which he demonstrated the method of producing gas from coal. According to W.Matthews, "He exhibited the manner of burning it by an Argand lamp", and it is interesting to remember that it was Luke Howard's father, Robert, who had introduced the lamp of the Swiss chemist, Aimé Argand (1755-1803) to Britain.[3]

The first major work in gas-lighting by Boulton and Watt was undertaken by Murdock at Phillips and Lee's cotton mill at Salford in 1805-7 in which 271 Argand burners and 633 cockspurs were used. A fellow employee of Murdock's at Watts was a Samuel Clegg (1781-1861), often described as the "first gas-engineer" but a man who had received a good training in chemistry at New College, Manchester, from John Dalton. He left the employ of Boulton and Watt in about 1805 and in that year installed gaslighting at Henry Lodge's mill near Halifax. By now the process was becomimng well known, so much so that George Mushet could write in his diary, "28 January 1806.- In the evening made an experiment upon the distillation of Pitcoal in a retort producing by it a species of inflammable gas which when lighted burns with a pure blue flame excessively brilliant and luminous."[4]

Between 1805 and 1812, Murdock, Clegg and a Birmingham engineer, Josiah Pemberton, had installed at least nineteen gas works for light, including some very local street lighting, and some for heat, but none of them seem to have thought of distributing gas over a large public area from a central source by means of pipes. This idea emanated from a German, Friedrich Albrecht Winzer (1763-1830) who later called himself Winsor.[5] He too had been impressed by Lebon's work in Paris and tried to buy one of his *thermolampes* without success. Returning to Germany in April 1802 he made his own "lighting apparatus" but failed to interest either the Duke of Brunswick or any influential member of the court, so he moved on to London late in 1803.

He published pamphlets on the subject and gave demonstrations and lectures at the Lyceum Theatre. Then he determined on a masterly piece of propaganda. On 4 June 1807 Winsor erected gas lights along the wall separating the Mall from Carlton House which was then occupied by the Prince of Wales. Earlier to increase his operating funds he had formed a society for the propagation of gas-lighting, and now established a company but made extravagant claims for both the utility of gas and the fortune it was to make for the shareholders. Lady Bessborough waxed caustic about this in her letter of 7 September 1807 to the British ambassador in St. Petersburg.6 Nevertheless she went to a meeting of which she wrote, "I never saw so odd a looking place, something like a cellar with crucibles and strange looking instruments resembling an Alchymist's shop in a Tenier's picture, and there mix'd and squeez'd together were fine Ladies, a few Rabbis, Merchants, Peers., blue Ribbons and tallow Chandlers - all raring for shares."

Not content with this excitement Winsor in December he lit Pall Mall from St. James's to Cockspur Street with thirteen 3-jet iron hollow lamp-posts. His grandiose national Light and Heat Company with a million pound share capital was turned down by the Privy Council in 1809, undeterred he then applied to Parliament for an Act. Winsor's Gas Light Bill was defeated, but he again applied, and after much opposition including that from Boulton and Watt, he obtained a more modest Bill in 1810, although the charter of incorporation was not received until 1812.



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*A Peep at the Gas Lights in Pall-Mall*

One of his supporters who gave evidence in 1809 before the parliamentary Committee of Enquiry had been a pharmacist and a fellow German, Friedrich Christian Accum (1769-1838) who had emigrated here some years earlier. Accum was born at Bückeburg about twenty miles from Hanover, the son of a Christian Jew who was a soap manufacturer. He had been apprenticed at the Brande pharmacy in Hanover, and aged 24, his time over, came to work in the Brande family's London branch in Arlington Street under W.T.Brande's father, Augustus Everard. He first set up for himself in 1799 in Islington where he received a good report from the Censors of the College of Physicians, but soon moved to 11, Old Compton Street, Soho.[7] Here he lived for the next twenty years extending his shop, from which he sold chemicals and apparatus, with a laboratory where he taught practical chemistry in his own school. Amongst those who came for tuition were such men as the future professors, William Pleck of Harvard and Benjamin Silliman of Yale.

From 1801 to 1803 Accum was assistant chemical operator under Humphry Davy at the Royal Institution, and gave public lectures. In 1809 he was appointed Professor of Chemistry at the Surrey Institution near Blackfriars Bridge where he lectured on pharmacy as well as chemistry. He was a regular contributor to *Nicholson's Journal* (started 1797) in which he wrote on vinegar-making, benzoic acid, beet-sugar, purification of iodine and of course on the adulteration of drugs and foodstuffs for which he became well known and much vilified.

Accum was made chemist and a director of the new Gas, Light and Coke Company whose charter had been granted for "...the lighting of the City of London, the City of Westminster and the Borough of Southwark". The charter did not give a monopoly of supply but it did confer the statutory right to dig up the streets for laying the gas mains. By the end of July 1812 James Hargreaves, surgeon & apothecary, an original trustee from 1807 who had conducted experiments with Winsor, began to install gas-making plant at Cannon Row, Westminster, but the site proved too small and was sold.[8] The first three permanent gasworks were established near Horseferry Road, (1813), Curtain Street just north of the present Liverpool Street station, (1813), and Brick Lane, Clerkenwell, (1814). Accum however resigned in November 1813 apparently due to an alleged nonpayment of his fees.[9]

Nevertheless his *Practical Treatise on Gas Light* helped to popularise the new industry when published in 1815. It was followed by the even more important *Description of the Process of manufacturing Coal Gas* of 1819.

There had been developments in the north of England as well. Samuel Clegg had in 1811 equipped Stonyhurst College, the first non-industrial concern. The head of the Roman Catholic Mission in Preston, Father Joseph Dunn who helped to establish the Preston "Lit. & Phil. Society", became interested in gaslighting and gave lectures on the subject in 1812. A committee to forward the idea was soon formed on which was James Mounsey, chemist & druggist of Friargate; Preston was formally lit on 20 February 1816.



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*The Triumph of Gas Lights.*

From early days pharmacists had shown an interest in the practical applications of coal-gas production, men such as the "Belgian" pharmacist Jean-Pierre Minkelers (1748-1824), Professor of Philosophy at the University of Louvain who in 1783 lit his lecture room with gas, or the German pharmacist, Wilhelm August Lampadius, (1772-1842), Professor of Chemistry at the famous mining academy of Freiberg who is credited by Urdang with having established the first gas plant on the Continent.[10]

Henry Browne, FRS, FSA, (1760-1831), apothecary and chemist & druggist, son of Theophilus of the same profession in Irongate, Derby, is considered to be the first man in that town to have lit his house and shop with gas. He had manufactured it himself and had developed an ingenious device whereby "the escape of smoke was entirely prevented by its consumption in the furnace."[11] The Wraggs of Edmonton Green, Middlesex, not only held shares in the local gas works but had a personally-owned gas-lamp on the pavement outside their shop and post-office.

Two English pharmacists of particular interest are Bevington Gibbins, a Quaker, and Reuben Phillips. Bevington (1792-1835), the son of Joseph Gibbins of Aston, Birmingham, successful button manufacturer who became a banker, was apprenticed to Frederick Smith, chemist & druggist of the Haymarket, London, in 1806 for seven years.[12] As soon as his time was over he moved to Lydney, Gloucestershire, and then in 1817 to Neath where he set up as a manufacturing chemist. Here he became interested in the manufacture of coal-gas at the Melin Crythan works, so much so that he and Charles Hunnings Wilkinson jointly obtained a patent for improved retorts. Wilkinson had been an apprentice for four years in 1784 of Benjamin Maddock, a surgeon & apothecary of Nottingham, and later became a lecturer on galvanism and experimental philosophy at St. Bartholomew's Hospital.

Like Accum he belonged to many of the learned societies of the day, and on his retirement to Bath did not relinquish his interests but helped to form the Bath "Lit. & Phil." Society where he gave talks. He was a firm believer in the value of gas-lighting and played a leading part in promoting the Bath Gas, Light and Coke Company.

Crude coal-gas, after passage through the retorts and the receivers (where the ammoniacal liquor and tar are condensed), still contains impurities, so has to be next passed through the scrubbers and purifiers. In these early days calcium hydroxide or slaked lime was used for purification, proving particularly useful for removing carbon disulphide which is always present. Heard, Winsor's one-time assistant, patented dry lime in 1806, and in 1809 Clegg used quicklime and water, changing to lime-water later on William Henry's advice.[13] None of these methods was totally successful. It was left to a pharmacist, Reuben Phillips, junior, of Exeter to develope a more satisfactory process by using slaked lime which was only just damp enough to make the particles cohere. The idea was patented in 1817 but he reaped little benefit from it as he had great difficulty in obtaining licence payments. His health deteriorated and he died in 1828.

Reuben Phillips, senior, was a chemist & druggist in Fore Street, Exeter who had been the apprentice of Francis Brayne, another local druggist.[14] His son had early become interested in gas-lighting and had illuminated the pharmacy with it, as well as becoming involved in plans for the whole city. After his early death, his brothers, Charles and Henry, took over the management of his financial interests and it was agreed that the gas company would pay £105 a year until 1831 to his widow and two children. Young Reuben had married in 1823 Ann Patch the daughter of an influential chemist & druggist in Exeter.[15]

There was however a rival to coal-gas in the field and one which remained so for many years. Oil-gas was made by dropping fish oil on red-hot bricks and could be made in a smaller and simpler plant than coal-gas; it had excellent illuminating powers and contained little or no hydrogen sulphide. William Henry in his Manchester laboratory carried out some work on this gas which was supplied by the firm of J. & P. Taylor.

Philip Taylor (1786-1870), the fourth son of a Norwich cloth and yarn merchant, had been apprenticed in 1801 to William Harness, surgeon & apothecary of Tavistock, who



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had but recently finished his own training with old Thomas Burnaford. Philip, like many another at this period, found that he hated surgery so that on his return to Norwich he joined a Mr Chambers, chemist & druggist.[16] There he invented (and later marketed) a wooden pill-box, making the first specimen with a small lathe turned by a pet dog.

In the Spring of 1812, Philip and an elder brother John (1779-1863), an experienced mining engineer, moved to Stratford, Essex where they became partners in a chemical works. At first they concentrated on the manufacture of vitriol using imported pyrites and brimstone but soon diversified into the production of gas from oil. The first patent, taken out in 1815 in John's name, was followed by others by Philip.[17] Oil-gas was used by a number of companies and was adopted in preference to coal-gas by the London Society of Apothecaries.

It is often forgotten when pharmacists are urged to abandon their old title of "chemist & druggist", that many of them in the first decades of the nineteenth century were true chemists. To date little study has been made in this country on the contribution these men made to the application of chemical knowledge.


The cartoonist of 1822 was obviously not as favourably impressed by the innovatory work of this pharmacist "I. Killem, Chymist" as he might have been.

## Notes and References.

1. A.Raistrick, *Quakers in Science and Industry*, 1950, Newton Abbot, David & Charles, p.242.
2. D.Chandler & A.D.Lacey, *The Rise of the Gas Industry*. Owing to the expense of coal in Paris, Lebon used much wood for his gas production.
3. W.V.Farrar et al, "The Henrys of Manchester" Pt.3, *Ambix*, vol.22, Nov. 1975, p.188.
4. R.M.Healey (Ed.), *The Diary of George Mushet*, 1982, Derbys. Arch. Soc. His older brother, David, was one of the great pioneers of iron manufacture, whilst a younger one, Robert, became chief melter of the Royal Mint. The iron works where David and George were working in 1805 had been started in about 1800 by a physician, Dr Forester, an attorney, Mr Edwards and a pharmacist, Henry Saxelbye.
5. E.G.Stewart, *Town gas, its manufacture and distribution*, 1958, London, Science Museum, p.10.
6. M.D.George, *England in Transition*, 1953, Penguin, p.112-3.
7. C.H.Spiers, "William Thomas Brande, Leather Expert", *Ann.Sci.*, Vol.25, Sept. 1969, p.184.
8. The Gas Museum at Bromley-by-Bow, North Thames Gas, p.6.
9. Long after he had relinquished his post at the Royal Institution, Accum continued to use the library, but the assistant librarian, Mr Sturt, began to notice that the books he had been consulting were mutilated. In December 1820, the librarian and police officer called on Accum with a search warrant and found the missing pages. He was charged in court but a sympathetic magistrate ruled that they were only waste paper and he was discharged. The Institution managers then obtained a bill of indictment against him but before the case was heard, he fled to Germany, forfeiting a £200 bail. Some of the missing pages on Parmentier's work from *Nicholson's Journal* have apparently never been recovered. As far as this country is concerned, a sad end to a fine career.
   Although there is no mention of a child being born to him here, *The Record of Old Westminsters* (compiled by G.F.R.Barker & A.H.Stenning, 1928 shows a Frederick Ernest Accum being admitted on 20 September 1813 who left at Christmas 1813. Westminster was the school of both Everard and W.T.Brande.
10. G.Urdang, *Pharmacy's part in society*, 1946, Madison, A.I.H.P., p.46.
11. E.Sample, "Henry Monkhouse, chemist of Derby", *Derbyshire Countryside*. Oct. 1972, p.72. He retired in 1819.
12. Frederick Smith was the apprentice-master of John Bell. It is interesting to note that Bevington's older brother, Joseph. (born 1787) was apprenticed to Ollive Sims of Stockport in 1802, Luke Howard's one-time master.
13. Farrar, op.cit.,p.192.
14. Reuben senior, the son of yet another Reuben and his wife Margery, was baptised at Clyst Honiton close to Exeter in 1747. Besides his son he had at least four other apprentices.
   Burnet Patch, father of Ann, took eight apprentices between 1790 and 1805 for whom he used to receive premiums of up to £150.
16. John Walker of friction match fame and J-F Pilâtre de Rozier the ballonist discovered an equal horror of surgery in their training. The D.N.B. indicates that Philip Taylor joined a Mr Chambers in Norwich but a family historian, Philip Meadows Taylor, in his *The Family of Taylor of Norwich*,(1866) says it was a Dr Fitch. There is some confusion here as he married in 1813 a Sarah Fitch daughter of Robert Fitch, a surgeon & apothecary in Ipswich who had a brother Samuel, a chemist & druggist in the Buttermarket of that town.
17. Philip also took out patents for the refining of sugar, and the use of steam in evaporation. He tried to introduce his gas-oil in Paris in 1822 with little success.

## Acknowledgments

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**Cambridge University Library,** West Rd.,Cambridge.CB3 9DR.
English leechbook, c.1400, (Add.9308);
English medical recipe book 15th.cent. (Add.9309).

**University College London Library,** Gower St.,London,WC1E 6BT.
Sir William Jenner (1815-98), Prof. of Materia Medica: letters to Charles John Fare, consulting physician. (MS.Misc.3J)

**Wellcome Institute Library,** 183 Euston Rd.,London NW1 2BE.
Medical manual containing an English translation of part of John of Arderne's treatise on fistulae, medical recipes and prescriptions, lists of herbs, c.1575, (MS 7117);
Lady Ann Fanshawe: recipe book compiled from 1651, (MS 7113);
English medical and culinary recipe book, early 18th. century. (MS 7124);
Cash and recipe book of Leeds apothecary, mid-19th. century. (MS 7111)

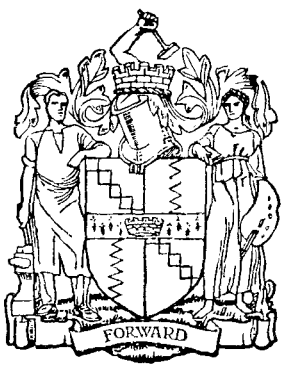
**Wigan Archives Service,** Wigan R.O.,Town Hall, Leigh.WN7 2DY.
Alfred Thompson, chemist, Leigh:account books, 1913-51 (ACC 2958)

**Dudley Archives,** Mount Pleasant St., Coseley, Dudley. WV14 9JR.
R.C.Turner, chemist, Halesowen: records 1939-87 (ACC 8997)

**East Sussex R.O.,** The Maltings, Castle Precincts, Lewes. BN7 1YT
Eastbourne Pharmaceutical Committee and Panel Chemists: minute books 1927-71.(ACC 6700).

## Amendment.

Mr E. George of Westbury-on-Trym has written, "I did enjoy Mr Oliver's article, 'September 1st.1932, an important day for Pharmacy'. It was certainly a scientific watershed. It does however contain a small factual error. Mr Moore's initials are given as E.S. whereas they should be E.J. Mr Moore was an outstanding botanist and it speaks well for his ability as a ... teacher that he could take his students so successfully into the world of physiology and pharmacology. He was a quiet unassuming man and I don't think we ever heard how he won his Military Cross."

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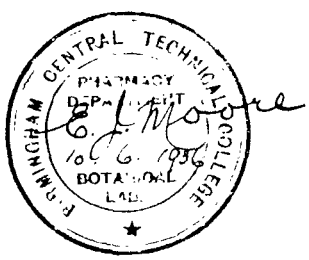


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